"Analysis of response to post donation counselling from a teritary care blood center in central india"

Thesis submitted to the faculty of

ALL INDIA INSTITUTE OF MEDICAL SCIENCES, BHOPAL

For the award of the degree MD in the subject of

TRANSFUSION MEDICINE AND BLOOD BANK

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AIIMS, Bhopal Institutional Human Ethics Committee- Post Graduate Research (IHEC-PGR) in its 5th meeting held on 10th February 2022 discussed your proposal titled **"Analysis of response to post donation Counselling from a tertiary care blood center in central India."** and evaluated it for suitability for your dissertation as required for fulfilment of MD/MS program.

Following members attended the meeting:

1. Prof. D. K. Pal, Former Professor & HoD Community Medicine, GMC, Bhopal...Chairperson
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The decision of the committee is as follows:

The AIIMS, Bhopal IHEC-PGR approves your research protocol. All research related activities must begin only after the date of this approval. The validity of this approval is till two years from the date of issuance. Please submit a closure report / renewal request before expiration of the validity for this approval.

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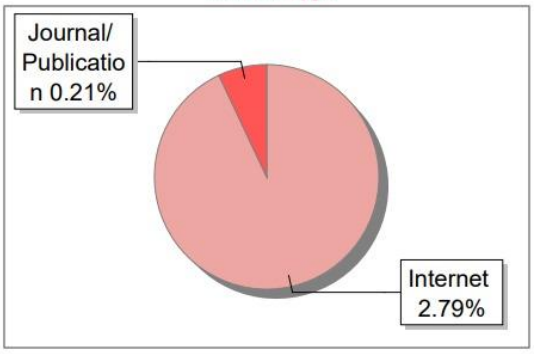

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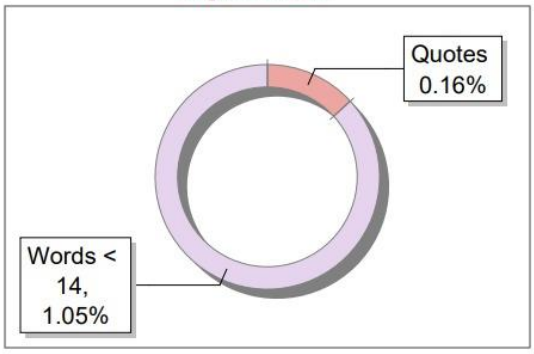

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Abbreviations:

VD: Voluntary donor

RD: Replacement donors

TTI: Transfusion transmitted infections

HBV: Hepatitis B virus

HBsAg: Hepatitis B surface antigen

HCV: Hepatitis C virus

HIV: Human immunodeficiency virus

AIDS: Acquired immunodeficiency syndrome

CUE: Confidential unit exclusion

BTS: Blood transfusion services

VNRBD: Voluntary non-renumerated blood donor

PTH: Post-transfusion hepatitis

NANB: Non-A non-B hepatitis

ELISA: Enzyme linked immunosorbent assay

VDRL: Venereal disease research laboratory

RPR: Rapid plasma reagin

NACO: National AIDS Control Organization

RT: Reverse transcriptase

ICTC: Integrated counselling cum testing center

OBI: Occult hepatitis B infection

OCI: Occult hepatitis C infection

REDS: Retrovirus epidemiological donor study

1. **TITLE:** Analysis of response to post donation counseling from a tertiary care blood center in central India.

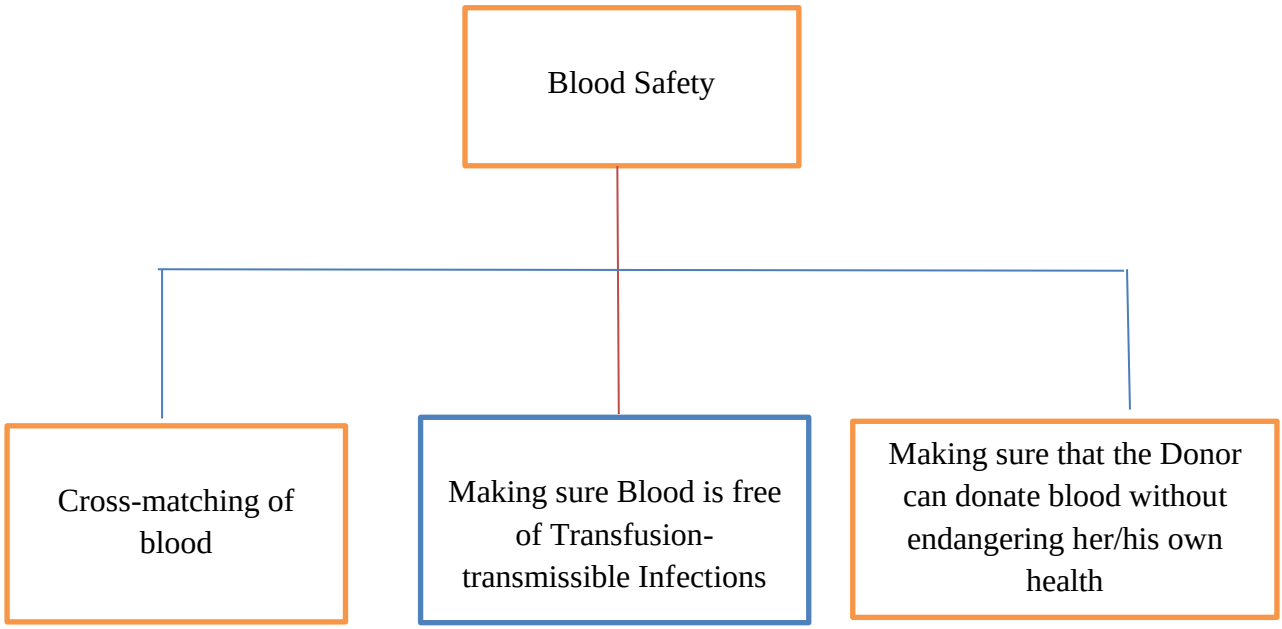
2. INTRODUCTION:

Blood transfusion service is an essential element of healthcare system and people who donate their blood and provide unique contribution by saving lives and improving patient health. There is no substitute for this precious resource. The primary responsibility of a blood transfusion service is to provide a safe, sufficient, and timely supply of blood and components to those in need. In fulfilling this responsibility, the Blood Transfusion Service should ensure that the act of blood donation is safe and cause no harm to blood donor. It should build and maintain a pool of safe, voluntary non remunerated blood donors and take all necessary steps to ensure that product derived from donated blood are efficacious for recipient, with a minimal risk of any infection that could be transmitted through transfusion. To achieve these targets blood bank all over the world have implemented various methods like continuous improvements in donor selection and deferral criteria. Blood donors should be provided with high standards of care and assurance of their health and safety.[1,2,3]

There is currently no substitute for blood. People with various health needs rely on voluntary blood donors to provide red blood cells, platelets and plasma to meet these needs. In cases of trauma or during surgical operations, the volume of blood lost by the patient may initially be replaced with synthetic solutions such as saline. These solutions are able to maintain blood volume for a certain period of time or act as plasma expanders. However, these solutions do not carry oxygen and are not "blood substitutes". They are often used in the initial treatment of patients, for example in the ambulance or in the operating room, when taking blood from the blood bank.[4]

Making Blood Safe for Blood Donor and Blood Recipient

Ensuring blood safety means ensuring that donating blood is safe for the donor given the current state of health and also that the donated blood carries a minimal risk of adverse effects on the recipient in terms of matching blood types and is free of transfusion-transmissible infections.[4]


Blood Safety
Cross-matching of blood
Making sure Blood is free of Transfusion-transmissible Infections
Making sure that the Donor can donate blood without endangering her/his own health

Blood donor counseling is an integral part of Blood Transfusion Service. It is their duty towards all individuals who present themselves for blood donation. Blood donor counseling is a confidential dialogue between blood donors and a trained counselor about issues related to donors' health and the donation process. It may be provided before, during and after blood donation. It minimizes the unnecessary loss of suitable donors while maximizing retention of donors, including those who are temporarily deferred.[1,2]

Through counselling, the BTS can help donors give their informed consent for blood donation and disqualify risky donors. Counselling also enables donors to self-defer if they are aware of any risk of contracting a transfusion-transmissible infection, have a known medical condition, or have undergone treatment that may affect their suitability to donate blood.[5] Reducing the amount of blood donated by inappropriate donors that must be discarded can help save money by preventing the needless loss of screening tests, consumables, staff time, and donor discomfort.[6] Blood donor counselling helps to maintain a pool of trustworthy, dependable, and safe voluntary unpaid blood donors while lowering the occurrence of TTI in donated blood.[7] Blood donor counselling is a significant way to encourage healthy lives and contributes significantly to the wellbeing of both the person and the community.[8,9] Counselling also helps with the early detection and treatment of diseases like anemia, blood problems, and infections. This presents a critical early entry point for the treatment and care of donors who are discovered

to be contaminated and may help to postpone or prevent the onset of a full-blown illness or consequences.[10,11] Additionally, counselling may lessen unfavorable donor reactions.[12]Over 92 million blood donations are collected annually globally, according to data submitted by 164 countries to the WHO Global Database on Blood Safety. Approximately 1.6 million of these units are rejected because they include TTI indicators including HIV, hepatitis B (HBV), hepatitis C (HCV), and syphilis. Additionally, at least 13 million potential donors are discouraged from giving blood because of anemia, pre-existing diseases, or the possibility of contracting an infection through transfusion.[13]

Blood donor counselling

The World Health Organization defines blood donor counseling as "a confidential dialogue between a blood donor and a trained counselor about issues related to the donor's health and the blood donation process". This definition focuses on two main points - the blood donation process (as it happens) and donor to carry out the donation in such a way as to ensure the safety of both the donor and the potential recipient. Counseling of blood donors takes place before, during and after donating blood. Counseling should be tailored to the donor's specific needs regarding the blood donation process in the context of language and educational level. The main goals of donor counseling are • to clarify myths and misconceptions about blood donors • to prevent potentially ineligible and unfit donors from donating • to give the donor the opportunity to exclude himself from donating if he is aware that he has been exposed to any risk of transfusion-transmitted infection (TTI)/known health problem/some treatment performed that makes them unfit to donate • Understand the consequences of TTI infections • Give them the right to know their health status and plan behavioral changes • Improve donor perception of transfusion services (BTS) and increase the likelihood of returning donors for future donations / will become VNRBD from replacement donors.[1]

Stages of counselling for blood donation

There are four stages of counseling for potential blood donors:

a) Information before donation

b) Pre-donation counseling

c) Advice on donating blood

d) Post-donation counseling

A trained blood donor counselor who must maintain donor privacy and confidentiality should provide advice. All blood centers should train their donor organizers/medical staff/doctors to provide advice when specialized manpower is not available.

Pre-donation information

Pre-donation information and counselling are linked to the process of donor selection in which each individual's suitability to donate is carefully assessed against a set of criteria related to their medical history and risk for TTI. Pre-donation information is usually a process of educating and raising awareness of potential donors about donating blood or components. It may be given in writing or verbally by giving blood donors before collection by a counselor or medical staff at the collection facility or during collection educational lecture or seminar focused on all pre-donation questions of donors. Information before donating sessions provide the potential donor with the opportunity to ask the following questions and dispel doubts about the blood donation process.[14,15]

Pre-donation information should also be clearly displayed at the blood waiting or receiving point collection centers and includes:

• Rights and obligations of the donor

• Importance of voluntary blood donation.

• Donor safety.

• Eligibility criteria for blood donation and justification of the donor questionnaire.

• Overview of the donation process

• Basic information about common TTIs, including transmission method and window period

• Possibility of self-defer.[1]

Pre-donation counselling

This is a more focused one-on-one counseling session in private before donating blood for all registered and potential blood donors to assess donors' understanding of blood donation and assess personal TTI risk history. It contains a detailed explanation of the blood donor questionnaire and the importance of giving the correct answers. It aims to introduce and raise awareness among donors about • the process of donating blood • TTI, its transmission route

and prevention • Testing their blood for TTI • Implications and possible consequences of test results • Availability of donor counseling, testing and support agencies • Ensure and obtain informed consent from the donor with donation and testing. • It also provides an opportunity for the donor to defer and discourages blood donation by people who behave for testing.[14-19]

Counseling during blood donation

Blood donation counseling is provided so that they feel comfortable at the time of donation. During blood donation, the donor's experience shapes the overall perception and willingness to donate blood again. Fear of the needle is the most common cause of anxiety and fear at this stage. Discussion during this phase the main focus should be on reducing anxiety and reducing the chances of any adverse reaction of the donor during or after donation. Counseling after donation and care of the venipuncture site should also explain at this stage. The option to exclude confidential units should also be discussed to the donor. Confident Unit Exclusion (CUE) is a system that gives donors the opportunity to inform the blood center immediately after collection or subsequently if they believe that their blood may be unsuitable for transfusion. This is useful if donors have been persuaded or coerced into donating. Where CUE is used, donors should be informed to contact the blood center and advise that their blood should not be used for transfusion. Emphasis should be placed on providing donors with appropriate contact details of the blood center in the event of a blood donation drive, particularly off-site.[4,20-23]

Post donation counseling

Post-donor counseling is generally provided on an as-needed basis. Immediately after donating are blood donor was given some brief instructions for self-care in the next 48 hours (drinking water advice and avoiding heavy sternous exercise are given) and information about what to do in the event adverse consequences of donation. In addition, post-donation counseling may be required those donors found to be reactive to one of the TTI markers or exhibit any unusual red blood cell serology.

Among the main goals of post-donation counseling in such cases are:

- Explain the results of the tests, the need to confirm the results, the health consequences for the donor and donated blood (discarded) and suitability of the donor for future blood donation

- Encourage donors to provide all relevant information, including the possible source of infection.
- Alleviate the donor's anxiety and clarify his doubts or concerns
- Provide information on preventive measures to prevent transmission of infection to others
- Provide information and recommend donors for further investigation, treatment, management and care if necessarily Donors with any unusual red blood cell serology are informed of the details, their importance for future donation/blood recipient.[4,24,25]

The specific objectives of donor counseling are to provide: 1. Policy guidance on providing blood donor counseling as an essential component of quality donor service and care and as a requirement for a safe blood supply. 2. To promote care and the safety of blood donors and transfusion recipients through counseling for: (a) Donors who have been deferred from blood donation to protect their own health or that of patients receiving transfusion. (b) Blood donors with unusual red cell serology or rare blood groups. (c) Blood donors with abnormal test results for HIV, HBV, HCV, syphilis, Chagas disease or other TTI.[4]

The blood donor counselling is particularly an important part in conditions and situations like:

First-time donors and young donors: to explain the blood donation process and to ease their anxiety and fears.

Individuals who do not meet criteria for donor selection based on assessment of history and risk of TTI leading to temporary or permanent deferral: explain reason for deferral (example: history of cancer, multiple sexual partners) and provide information on further treatment, as appropriate

Individuals in whom baseline health screening reveals a condition suggestive of temporary or permanent deferral: explain reason for deferral (e.g., low levels of hemoglobin) and provide information about further treatment, if applicable.

Individuals who may donate blood to seek testing for infections such as HIV: to understand their motivation to donate blood and to provide information about voluntary counselling and testing services.

Donors who had experienced adverse reactions during or after donation in the past donation history: to alleviate their anxiety and fears.

Donors who requested a confidential unit exclusion (CUE) after a previous collection or informed the BTS that their blood should not be transfused: to be aware of the reason for the CUE and referred for further treatment.

Donors who provide post-donation information that warrants a temporary or permanent deferral (e.g., a serious health problem that occurred shortly after donation): explain the reason for the deferral and, if applicable, provide information on further management.

Donors with unusual red blood cell serology, rare blood groups, or abnormal TTI test results: explain the importance of these results to the donor and provide information on how to proceed.[1,4]

Transfusion-Transmissible Infections (TTIs):

TTIs are infections that can occur in a blood transfusion recipient if the transfused blood contains a pathogen. Many organisms such as bacteria, viruses and parasites can be transmitted through blood transfusions.[1] The Indian Drugs and Cosmetics Act mandates that all units of blood collected at blood banks for transfusion must be screened for the following organisms that cause TTI: a) Human Immunodeficiency Virus (HIV) which causes AIDS, b) Hepatitis B virus and Hepatitis virus C, c) Treponema pallidum (which causes syphilis), d) Plasmodium species (which causes malaria).[26]

Blood that has any of these infections is discarded to prevent others from being infected. But this is an expensive process. Screening also may not show a person who is in the window period, specifically a person who is infected but has not yet developed antibodies that can be picked up by screening. As a consequence of the advice, there is also a need to encourage donors to honestly report any particular behavioral or medical history that might mean they should not donate blood at this time.[4]

Historical overview of blood donor screening

In the 1960s, studies showed that greater than 30% of patients who received multiple transfusions developed posttransfusion hepatitis (PTH).2 Studies in the early 1970s found that the newly discovered hepatitis B virus (HBV) accounted for only 25% of PTH cases.' Both HBV and non-A, non-B (NANB) hepatitis occurred more frequently in recipients of blood from commercial (paid) blood donors than in recipients of blood from volunteer donors. By the mid-1970s, implementation of sensitive tests for hepatitis B surface antigen (HBsAg) and conversion to a volunteer donor supply resulted in a dramatic reduction in the incidence of both

HBV and NANB PTH. Still, NANB PTH continued to occur in approximately 6% to 10% of recipients of multiple transfusions. The presence of antibody to hepatitis B core antigen (anti-HBc) and/or the presence of elevated alanine aminotransferase in blood donors have been shown to be associated with an increased risk of NANB PTH.4-7 However, concerns about the nonspecific nature of these tests have led to delays in their implementation for screening donors for an inverted CD4/CD8 T-cell ratio, an immune abnormality found both in AIDS patients and in humans during the pre-AIDS incubation period that was subsequently identified as human immunodeficiency virus (HIV) infection." However, it was originally believed that the risk of transmission of AIDS by transfusion is too low to warrant replacement interventions." After HIV was isolated and identified as the causative agent of AIDS, HIV antibody donor screening tests were rapidly developed and implemented in 1985.[27-33]

Once the HIV antibody test became available and cases of HIV were recognized in both previous donors and transfusion recipients, it became clear that the risk of HIV transmission through blood transfusion was greatly underestimated. io Experience with HIV has highlighted the fact that the infectious agent associated with long-term asymptomatic carriage can be present in the blood supply for years without being recognized. Following this discovery, the approach to donor screening was expanded beyond known substances. Current assessments of donor history include screening and exclusion of donors at increased risk of exposure to blood or sexually transmitted infections. The intent is to reduce the likelihood that the blood supply will be exposed to other as yet unidentified agents that are potentially blood-borne.[34]

Transfusion-transmitted infections (TTIs) are still considered a serious adverse transfusion reaction despite a drop in post-transfusion infection rates from 30% in the 1960s to just 3 infections in 2018 in the UK Serious Hazards of Transfusion (SHOT) report.[35] This reduction in incidence may be due to better donor education, donor screening criteria, testing facilities to shorten the duration, etc. However, there are still many new pathogens that are a potential risk to transfusion recipients. A pathogen should have the following characteristics for designation as a transfusion-transmissible infectious agent. 1. Should be asymptomatic or cause subacute donor infection. 2. It should have a long incubation period for the development of symptoms. 3. It should be able to live, persist or replicate in the donor and recipient population. 4. It should be stable in stored blood and components at different temperatures. 5. It can have a latent phase through the incorporation of microbial nucleic acid into the blood cells of the infected host. Microbial nucleic acid can reactivate and initiate infection in a recipient when transfused with blood from an infected donor.[36]

Common pathogens which can be transmitted through blood transfusion.[36]

1. Viruses: Human Immuno-deficiency Virus 1 & 2 (HIV 1& 2) Hepatitis A virus, Hepatitis B virus, Hepatitis C virus, Hepatitis D virus, Hepatitis E virus, Hepatitis G virus Human T-cell lymphotropic viruses Types I/II (HTLV-I/II), Dengue virus, Chikungunya virus, Ebola virus, Parvo virus, Influenza, West Nile virus, Zika virus, Nipah virus, Lymphatic choriomeningitis virus (LCMV), Epstein Barr virus (EBV), Human Herpes viruses 6, 7 and 8 (HHV).
2. Bacteria: Treponema pallidum, Staphylococcus epidermidis, Staphylococcus aureus, Bacillus cereus, Streptococcus, Escherichia coli, Serratia, Propionibacterium acnes Enterococcus faecalis, Enterobacter, Klebsiella, Yersinia enterocolitica, Morganella morganii, Acinetobacter, Pseudomonas, Proteus.
3. Parasites: Plasmodium, Leishmania, Babesia microti, Trypanosoma cruzi, Toxoplasma gondii.

TTIs are infections which can occur in a recipient of a blood transfusion if the transfused blood contains a pathogen. Many organisms like bacteria, viruses, and parasites mentioned above can be transmitted through blood transfusions. The Drugs and Cosmetics Act of India mandates that all blood units that are collected in blood banks for the purpose of transfusion should be screened for the following organisms that cause TTIs i.e., HIV, HBV, HCV, Syphilis and Malaria. Blood which is detected as having any of these infections is destroyed to prevent infecting others. But this is an expensive process. Also, screening may not show a person who is in the window period, namely a person who is infected but has not yet developed anti-bodies that can be picked up by screening. The counseling implication is that there is need also to encourage donors to honestly report any particular behavioral or medical history that might mean that they should not donate blood at this time. There is need to create more awareness among blood donors, to achieve the goal of "Safe Blood Starts with Me!" by the World Health Organization.[37]

Once a donor passes the medical screen and donor questionnaire, required serologic testing is performed for hepatitis B surface antigen (HBsAg), antibody to hepatitis C virus (anti-HCV), antibody to human immunodeficiency virus (anti-HIV 1/2), syphilis and malaria. As current test methods are extremely sensitive, confirmatory tests are used to detect false positives. These tests, which vary by the disease, include polymerase chain reaction (PCR), Western blot (WB),

radioimmunoprecipitation assay (RIPA), and recombinant immunoblot assay (RIBA). In developing countries Rapid and ELISA are most commonly used tests.

Post-donation counselling is crucial in describing test results and the necessity for results confirmation. Post-donation counselling aims to (a) motivate donors to submit all pertinent information, including potential infection sources. (a) To allay any uncertainties or worries expressed by donors. (c) To calm the donor's fear. (d) To alert people about the precautions to take in order to stop the spread of infection. (e) To inform people about how to take steps to avoid infecting others[1]. Post-donation counselling response rates from central India were not observed. So, we intend to carry out this study to learn how many blood donors in central India respond to post-donation counselling.

3. REVIEW OF LITERATURE:

The Indian Drugs and Cosmetics Act mandates that all units of blood collected at blood banks for transfusion must be screened for the following organisms that cause TTIs like (a) Hepatitis B virus (b)Hepatitis virus C (c) Human Immunodeficiency Virus (HIV) (which causes AIDS) (d) Treponema pallidum (which causes syphilis) (e) Plasmodium species (which causes malaria).[26]

Hepatitis B Virus (HBV)

The virus known as the hepatitis B virus (HBV) mostly damages the liver. It is a significant contributor to both acute and chronic hepatitis, which can cause severe liver damage and other long-term health issues. HBV can be spread through coming into touch with infected blood, semen, vaginal fluids, or other body fluids. Unprotected sexual contact, sharing needles or other injecting tools, mother-to-child transmission during childbirth, and exposure to tainted blood through transfusions or medical procedures with contaminated devices are common methods of transmission. Symptoms of acute hepatitis B include exhaustion, lack of appetite, nausea, vomiting, abdominal discomfort, dark urine, clay-colored faeces, joint pain, and jaundice (yellowing of the skin and eyes). Many HBV infection sufferers, however, may not exhibit any symptoms or their symptoms may be minor and unnoticeable.

Chronic infection: Some people get an HBV infection that lasts longer than six months, which is known as a chronic infection. Serious liver problems like cirrhosis, liver failure, and an elevated risk of liver cancer can result from chronic hepatitis B. If they are infected at birth, infants and young children are more likely to acquire a persistent infection.

The Hepadnaviridae family of viruses includes the partly double-stranded DNA virus known as the hepatitis B virus (HBV). Its structure is made up of various elements:

1. Outer envelope: The virus is surrounded by an outer envelope derived from the host cell membrane. This envelope contains viral glycoproteins known as surface antigens (HBsAg), which are important for viral entry and immune recognition.

2. Capsid: Beneath the envelope, there is a protein shell called the capsid or core. The capsid is composed of multiple copies of a single protein called core antigen (HBcAg). It encapsulates the viral DNA genome and viral enzymes.

3. Viral genome: The HBV genome is a circular, partially double-stranded DNA molecule. It is approximately 3.2 kilobases in length and has 4 overlapping open reading frames designated as S, C, P, and X. These ORFs encode different viral proteins. - S gene: The S gene encodes the viral surface antigens (HBsAg). It has distinct start codons that allow the production of three different sizes of surface proteins: small (S), medium (M), and large (L) forms- C gene: The C gene encodes the core antigen (HBcAg), which forms the capsid. It also produces the e antigen (HBeAg), a soluble form of the core protein that is secreted by infected cells. - P gene: The P gene encodes the viral polymerase enzyme, which is important for viral replication - X gene: The X gene encodes the X protein, which plays a role in viral replication and is implicated in the development of liver cancer associated with chronic HBV infection.

4. Viral enzymes: HBV carries its own viral polymerase enzyme, which is responsible for reverse transcription of the viral RNA intermediate into DNA during the replication process. The polymerase also has a reverse transcriptase activity required for synthesizing the viral DNA. The complex structure of HBV allows it to enter hepatocytes (liver cells) and replicate within the nucleus, leading to persistent infection. The interaction between viral proteins, particularly the surface antigens, and the host immune system contributes to the pathogenesis and clinical outcomes of HBV infection.

It is the causative agent of hepatitis B infection, which leads to acute and chronic hepatitis infection. HBV infection, formerly also known as serum hepatitis, is a major cause of post-transfusion hepatitis. The introduction of HBsAg screening in blood components resulted in a significant decrease in occurrence of post-transfusion hepatitis. HBV is a partially double-stranded DNA virus that belongs to Family Hepadnaviridae, which belongs to the genus Orthohepadnavirus.

Structure of HBV: The infectious virion, also known as the Dane particle, is 42 nm in diameter with an internal 28 nm icosahedral nucleocapsid core. The outer shell or envelope contains the encoded virus polypeptides, HBsAg (originally known as Australian antigen) and host-derived lipid components. HBV the coat protein also occurs free in serum as 22 nm beads and 22 nm to 200 nm filaments. These spherical or tubular subviral particles are highly immunogenic but noninfectious because they do not contain DNA. In addition, the virion contains two additional proteins associated with the capsid core of the virion; type B jaundice core antigen (HBcAg) and “e” antigen (HBeAg). The inner core of HBV contains the viral genome and the viral DNA polymerase. For at least 7 days, HBV can persist outside of the body. During this time, the

virus can still cause infection. HBV virions can be inactivated after incubation with concentrated formaldehyde 1:2000 at 37°C for 72 hours, heat treatment at 98°C for 2 minutes or treatment with 2% glutaraldehyde at room temperature for 5 minutes.

The HBV genome is circular, partially double-stranded DNA, with complete negative DNA strand and the incomplete positive strand of DNA. Based on replication cycles, the DNA virus is close to retroviridae, so sometimes also known as DNA retrovirus. Genomic information of the present virus on a long DNA strand contains four highly overlapping (67%) open reading frames (referred to as S, C, P and X genes), encoding envelope (pre-S/S), core (pre-core/core), polymerase and X proteins, respectively. HBV is mainly classified into eight genotypes (A to H). These genotypes of HBV affect clinical outcomes, seroconversion rates, mutational patterns in pre-core, core promoter regions and response to antiviral therapy.

HBV is mostly spread by parenteral routes, which involve close contact with bodily fluids. The most frequent methods of infection include: • Contact with contaminated objects, such as needles or syringes used in drug injection, tattooing, ear piercing, or acupuncture; or • Exposure of wounds to contaminated blood. • Physical intimacy • Transmission during pregnancy or delivery Meaning of transfusion: Transfusion of infected blood or blood products can transmit the HBV virus. HBV infection takes 60 to 90 days on average to incubate, however this might vary from 24 to 180 days.

Changes in the level of HBV markers according to the clinical status.

S.no.	Marker	Clinical status
1.	HBV DNA	Acute infection
2.	HBsAg	Active infection, acute or chronic
3.	HBeAg	Acute or serious chronic infection
4.	Anti-HBs	Clinical recovery, infection resolved, immunity develops
5.	Anti- HBe	Resolution of acute infection may signal late sequelae
6.	Anti- HBc (IgM)	Early acute infection

7.	Anti- HBc (IgG)	Active or past infection (carrier state)

Occult hepatitis B infection: This subgroup is known as OBI, which is defined as HBsAg negative with persistent HBV DNA detectable by PCR, in the presence (80%) or absence (20%) of anti-HBc with or without anti-HBs. Most of these patients have very low or only occasionally detectable serum levels of HBV DNA, although HBV DNA is usually present in the liver. Donors with OBI can transmit HBV by blood transfusion, but the frequency of such infection is low and appears to be absent when anti-HBs are present.[38]

Hepatitis C Virus (HCV):

Hepatitis C is classified in the family Flaviviridae and in the genus "Hepacivirus" virus. Prevalence in India: The prevalence of HCV infection in India is 0.9 to 1.9%, which varies in different regions of the country. According to the NACO report 2017, the prevalence of HCV among blood donors in India was 0.30%. HCV genotypes 3 and 1 are common in India with approximately 60% and 30% respectively. Structure: The diameter of the virus is around 40-70 mm. The virus consists of a lipid envelope, two envelope proteins E1 and E2, and an icosahedral capsid containing a single-stranded positive-sense RNA genome. Genome: Six genotypes of the virus have been identified. The viral genome contains approximately 9,500 bases encoding approximately 3,000 amino acids. Hepatitis C is primarily transmitted through exposure to contaminated blood through transfusions, needle sticks, hemodialysis, human bites, transplants, acupuncture, tattoos, body piercings, and intravenous drug use. The virus is also known to be transmitted sexually and from mother to child perinatally. Significance of Transfusion: HCV is transmitted mainly by blood components and incompletely inactivated plasma fractionation products including IVIG, anti-D Ig for intravenous use, and factor VIII concentrate and has never been transmitted by albumin or anti-D concentrates for intramuscular use.9, 10 Clinical features: During acute phase of HCV infection, the individual is usually asymptomatic or may experience mild symptoms such as fatigue, flu-like symptoms, dyspepsia, or jaundice for 2–12 weeks after infection. HCV RNA will be detectable 1–3 weeks after HCV infection, while seroconversion may occur up to 4–10 weeks after exposure. Incubation period: The incubation period is 2 to 26 weeks. The average incubation period is 7 to 8 weeks, seroconversion occurs in 8 to 9 weeks.

Serological examination: The diagnosis of HCV infection is basically based on the detection of antibodies against the core protein and non-structural proteins NS3 to NS5. This can be done with a rapid test, ELISA, chemiluminescence test, etc. In ELISA or chemiluminescence tests, the 1st generation test only detects anti-HCV antibodies against the NS4 (c100-3) antigen, which has a window period of approximately 12 to 26 weeks. The 2nd generation test detects antibodies against two antigens, one core antigen and the other NS3 antigen. It reduces the window period to 10 to 24 weeks. The 3rd generation test detects an additional antibody against the NS5 antigen and further shortens the window period by 1 week. A recent 4th generation test detects both HCV antigen and antibody, increasing the sensitivity and specificity of the test, and the average window time is 26.8 days. HCV RNA NAT test: NAT testing reduced the window period to 4-6 days. Due to the high doubling time in the ramp-up phase, which is about 11 hours, the diagnostic window for HCV differs by only about one to two days between mini-pool blood donor screening or individual NAT. Occult hepatitis C infection: Castillo et al11 defined occult hepatitis C virus (HCV) infection (OCI) as the presence of HCV RNA in hepatocytes or peripheral blood mononuclear cells (PBMCs), but not in plasma/serum. OCI can be divided into two types: seronegative OCI, in which both anti-HCV antibodies and HCV RNA are absent in the serum, and seropositive OCI, in which anti-HCV antibodies are present in the serum but HCV RNA is absent. The proposed hypothesis of OCI is a mutation in the ability of the virus to encapsulate or produce and release virions into the bloodstream, leading to low levels of undetectable viremia.12 Screening of blood donors for antibodies to HCV, HCV RNA, and even measurement of aminotransferase concentrations do not rule out HCV infection because these enzyme concentrations may temporarily normalize in some patients with occult HCV infection. So, a history of HCV infection or jaundice is the only strategy that can be used to rule out such blood donors.[38]

Hepatitis C Virus proteins and their main function:

1.Structural proteins:

Core	Capsid protein
E1	Envelope glycoprotein — the fusion of the virus with cellular membranes
E2	Envelope glycoprotein — attachment to the cell

2. Non-structural proteins:

Core	Capsid protein
P7	Formation of ion channel in endoplasmic reticulum membrane
NS2	Protease — cleavage at the NS2-3 site
NS3	Protease — cleavage at the NS3/4A, NS4A/B, NS4B/5A, and NS5A/B sites
NS4A	Helicase — role in the viral RNA replication process
NS4B	Cofactor of NS3
NS5A	Formation of membranous structures essential for viral replication
NS5B	Regulation of viral replication RNA-dependent-RNA polymerase — replication of the hepatitis C virus genome

Human Immunodeficiency Virus (HIV):

HIV-1 was first isolated from the cells of an infected patient in 1983, and HIV-2 was identified in 1986. The virus was subsequently identified as the cause of acquired immunodeficiency syndrome (AIDS). It belongs to the Lentivirus group of the Retroviridae family. Structure: HIV is a 100nm globular retrovirus consisting of an envelope of glycoproteins, core proteins and an inner core of viral RNA and reverse transcriptase. The outer envelope of HIV consists of a lipid bilayer spiked with transmembrane gp41 (glycoprotein), which is loosely bound to gp120. Within this envelope is the nucleocapsid matrix protein (p17), which surrounds a central core protein or core antigen, p24. In this core are two copies of ss RNA, proteins p7 and p9, and the reverse transcriptase (RT) enzyme. HIV genome: HIV has a total of nine genes, three of which are structural genes gag (group-specific core antigens), pol (polymerase and integrase enzymes) and env (envelope), two regulatory genes tat and rev and four are accessory genes named vif, vpu, nef and vpr Unlike HIV 1, HIV 2 lacks vpu but has an alternative vpx. HIV has been isolated from most of the body fluids like blood, semen, cervical secretions, cerebrospinal fluid, tears, saliva, urine, and breast milk. Transmission modes of HIV are sexual contact, childbirth, breastfeeding, and parenteral exposure to blood. Higher risk is associated with homosexual men, injecting drug users, and blood transfusions recipients. Transfusion

significance: A HIV seropositive unit can transmit infection to recipient at a 90% rate. The estimated tissue culture infective dose of HIV is 1.5 × 104 and 1.75 × 106 in a unit of blood collected from asymptomatic and symptomatic donors respectively.3 The virus is well preserved in refrigerated and frozen blood. Leucoreduced, washed or cold-stored blood for several weeks diminish the amount of virus, reducing the likelihood of its transmission.4 HIV infection has not found associated with albumin, immunoglobulins, antithrombin III, hepatitis B vaccine, and plasma fractionated by the cold-ethanol. HIV-1 is classified into four groups with a total of 12 known subtypes. Prevalence in India: The HIV 1 subtype C is the most commonly transmitted subtype in India and southern African countries. As per the National AIDS Control Organization (NACO) report 2017, the prevalence of HIV in the adult population and blood donors was 0.22% (0.16% – 0.30%) and 0.12%, respectively.

Clinical signs: Commonly reported symptoms include flu-like symptoms with myalgias, skin rashes, headaches, anorexia and diarrhea or associated with the presence of opportunistic infections such as candidiasis, herpes zoster, cryptococcosis and Pneumocystis jiroveci pneumonia and secondary cancers such as Kaposi's sarcoma and non-Hodgkin's lymphoma. Acquired immunodeficiency syndrome (AIDS) results from chronic HIV infection and subsequent depletion of CD4 cells over a period of 1–8 weeks, which is detected by enzyme-linked immunosorbent assay (ELISA) and rapid testing. Seroconversion is observed within 4 weeks in 95% of individuals. HIV antibodies can be detected in 20-28 days using a 4th generation ELISA or rapid test, and more than 99% of individuals are completely positive for HIV antibodies within 3 months.[38]

Syphilis:

Structure: Treponema pallidum is a thin-walled, motile, spiral, Gram-negative rod or spirochaete that cannot be visualized with Gram's stain and does not grow in bacteriologic media or cell culture. While syphilis is primarily transmitted through sexual contact, it can also be transmitted through blood transfusion if the blood comes from an infected donor. To prevent the transmission of syphilis through blood donation, blood centers have established screening processes in place. Transfusion significance: The organism can survive for 1-5 days at 4ºC in RBCs. Platelets stored at 20 to 24ºC provide a more suitable temperature for T. pallidum; but it cannot survive for a longer time at high-oxygen tension in modern platelet storage bags. Incubation duration: Donors can transmit the infection with an incubation period that varies

from 4 weeks to 4.5 months, on average 9-10 weeks, and can be at any stage of the disease, including late, latent syphilis. Screening of blood donors includes: (1). Donor Questionnaire: Donors are asked to complete a health questionnaire that includes questions about their medical history, including any history of sexually transmitted infections or risky sexual behaviors. This helps identify potential donors who might be at a higher risk of having syphilis. (2). Testing Methods: Blood centers use specific serological tests to screen for syphilis infection. These tests detect the presence of antibodies produced by the body in response to the Treponema pallidum bacterium. The two main types of syphilis tests are non-treponemal tests and treponemal tests. The Venereal Disease Research Laboratory (VDRL) test and the Rapid Plasma Reagin (RPR) test are non-treponemal tests, these are the initial screening tests used to detect antibodies that react with substances released by damaged human cells or with components of the bacterium. If these tests are positive, further confirmatory testing is required. Treponemal Tests: If a non-treponemal test is positive, a treponemal test is performed to confirm the presence of antibodies specific to the Treponema pallidum bacterium. Treponemal tests include the Fluorescent Treponemal Antibody-Absorption (FTA-ABS) test and the Treponema Pallidum Particle Agglutination (TP-PA) assay. (3). Confirmatory Testing: If a donor tests positive on both the non-treponemal and treponemal tests, further testing may be done to confirm the diagnosis. This can involve additional serological tests or molecular methods. (5). Reporting and Follow-Up: Blood centers are required to report positive syphilis test results to the appropriate health authorities. This is done to track and manage potential cases of syphilis transmission and ensure that appropriate medical care is provided to affected donors.[38]

Malaria:

Four different types of species of malarial parasites are present i.e., Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale, and Plasmodium malariae, which transmit the infection to humans. Order: Haemosporida; Family: Plasmodiidae. India has the 3rd highest prevalence of malaria, and about 89% of the cases reported from the South-East Asian regions originate from India. This parasite requires two different hosts to complete its life cycle – an Anopheles mosquito (sexual stage) and humans (asexual stage). Asexual sporozoites are injected into humans by female anopheles' mosquitoes is the mode of transmission of the parasite. Malaria can also be transmitted by blood transfusion, organ transplantation, sharing of intravenous

needles or drugs, accidental laboratory exposure, congenitally or rarely in persons working at airports. Trophozoites which are asexual form of the malarial parasite present in erythrocytes are responsible for transfusion-transmitted malaria. Though transmission occurs mainly through red cell components (whole blood or packed red cells), other red cell contaminated blood components (liquid or frozen plasma, platelets, and granulocyte concentrates) and cryopreserved red cell units can also transmit the parasite. Adenine present in red cell preservatives such as SAGM (Saline-Adenine Glucose-Mannitol), CPDA (Citrate- phosphate-dextrose-adenine) increases the malarial parasite viability in stored blood. Plasma fractionated products such as albumin, IV Ig and factor VIII do not transmit the parasite. P. malariae is viable for less than five days at 4 to 60 C storage temperature while P. falciparum is viable for up to ten days at 4 to 60 C. Duffy blood group antigen is essential for invasion by P. vivax. Presence of significantly lower incidence, parasite density and hospital admission rate of P. falciparum in children with HbA S than HbA A in sickle cell anemia. Due to the persistence of hemoglobin F in thalassemia patients, which is relatively resistant to hemoglobin digestion by malarial hemoglobinase, the multiplication of the P. falciparum is significantly reduced. Hereditary elliptocytosis, ovalocytosis and pyruvate kinase deficiency have also shown protection against malaria. The incubation period of plasmodium varies depending upon infecting species, patient's immunity and number of parasites transmitted. For P. falciparum and P. vivax, incubation period may vary from 1 week to 1 month but for P. malariae it may require several months. Screening of malaria in blood donors done by detection of circulating antibodies or antigens of malaria parasite. ELISA or indirect immunofluorescence assay (IFAT) used for antibody testing mainly. The window period for IFAT is usually 7–14 days for infection by P. falciparum. This method is highly recommended for screening blood donors in non-endemic countries. Pf HRP-2 antigen is a water-soluble, histidine-rich antigen present in gametocytes of immature P. falciparum18, and monoclonal antibodies (MoAb) against it have been the basis of detection of circulating antigens. For microbiological examination of the parasite, a thick or thin smear of peripheral blood film is most commonly used, but it has a low sensitivity of around 50 parasites/ml or 0.001% infected RBC.[39]

Although blood transfusions can save lives, they also run the risk of spreading a number of harmful infectious diseases. There is still a concern with how blood donors react to post-donation counselling. Since most developing nations cannot afford to use the most advanced nucleic acid testing for blood screening due to financial constraints, unpaid blood donors play

a significant role in ensuring the safety of the blood supply in these countries. As a result, numerous research on post donation counselling have been conducted.[1]

A one-year study of this kind was carried out in West Bengal in 2011 by Mukherjee et al. Testing for transfusion-transmitted infections was done using the common enzyme-linked immunosorbent assay technique. The initial HIV reactive donors were counselled and directed to the Integrated Counselling Cum Testing Centre (ICTC) when they returned to the blood bank. A qualitative Polymerase Chain Reaction (PCR) was used to confirm the HBV and HCV reactive donors, and these donors were also referred and followed up to the gastrointestinal department. Overall sero-reactivity observed in their study was 1.59% which is comparable with other studies from India and other developing countries. In their study the rate of response among initial sero-reactive donor on notifications was only 34%, which is quite as low as compared to other studies. The study showed a positive response to post-donation counseling of 59.8% with highest volunteer's responders who were initially reactive to HBV. They realized that lack of proper donor education and pre donation counseling facilities is responsible for their result therefore, one cannot ignore the importance and significance of donor education, pre and post donation counseling. It was observed in their study that 39 of 47 reactive donors who responded to post donation counseling were repeat blood donors and also aware of TTIs and high-risk behavior.[40]

Similar study is also done by Thaker et al, in a tertiary care blood center in Surendra Nagar District, Gujarat, for safe blood donation practices and their response towards post donation counseling. They observed that a majority of our voluntary blood donors are still having reluctant approach to provide relevant information about their socio-demographic profile while registering them for blood donation. Proper pre donation counseling is still a challenge and even bigger challenge is post-donation counseling for TTIs among the voluntary donors. During this survey, 17,306 units of blood were collected. Among which 7 were reactive for HIV, 117 were reactive for HBsAg, 10 were reactive for HCV, and 101 were reactive for VDRL. Out of 235 donors who were reactive and called for counseling post donation, only 28.94% responded. Hence proper post donation counseling is an important approach for reducing the prevalence of reactive donors in blood transfusion services.[41]

Dr. E. Sabri Priya conducted a retrospective longitudinal study in order to ensure safe supply of blood and blood products to transfusion recipients. Notification and counseling of reactive blood donors is an effective method of reducing transfusion transmitted infections. The aim of

her study was to assess response rate and attitude of reactive donors towards post donation counseling and notification. Post blood donation all donor samples were tested by Automated Eliza (Mago 4) for all TTIs. All donor's samples which were reactive from the pilot tube (first sample), the tests were repeated from the blood bag (which is the second sample), as well as by Rapid Card test and was recorded in a reactive donor register and notified. HBV and HCV reactive donor's notification was done through telephone and donors were called for face-to-face counseling or given an option for consultation outside. They were counseled and referred to gastroenterologists for further follow up. HIV and Syphilis reactive donors were referred to ICTC and STD clinic respectively. Therefore, donor notification and counseling are a very important tool to reduce transfusion transmitted infections.[42]

Sachdev et al also did a similar study where they assess the response of blood donors to the disclosure of the TTI reactivity results, blood donor's risk factors and further follow up. They also look after the compliance of the disclosure to clinical referral in a population of blood donors who are inconvincible that they may be apparently harboring serious infections in a healthy state today but with possible clinical disease outcome in the future. The demographic data including gender, age, and donation status (first time, repeat donor) and donor status (voluntary or replacement) were obtained from the blood donor registration card and records. They made list and compared the donor demographics and pattern of reactivity in blood donor (initial reactive) and referred donors (repeat reactive). The study stresses on continuing sensitization of blood donation camp organizers to the need of privacy during selection of blood donor. The study also emphasizes the need to strengthen the pre donation counseling at outdoor blood donation at the same time raise consciousness amongst blood donors about the importance of post blood donation counseling and follow up.[43]

Retrospective study was done for 11 months of duration by Mishra et al. As a part of post-donation counselling, they assessed the sero-reactive donors' responses to being informed of their aberrant test results. Their technique involved making one phone contact, followed by two follow-up calls within a week at the donor-provided cellphone number. During the period of study among 9922 blood donors 2.02% were sero reactive pattern of HIV, HCV, HBV, Syphilis, Malaria was 0.06%, 0.65%, 0.60%, 0.69% and 0.01%, respectively. After notifying them telephonically about 63.1% could be contacted, advised and termed Responders. About 36.8% could not be contacted and termed non responders due to various reasons analyzed. 25.2% reported at their institute for face-to-face counseling. As a result, they came to the conclusion that donor notification is an effective method of reducing TTI but is compromised

by donor communication failure, leading to a persistent load of blood transmissible infectious risk. To address this, we need a better pre-donation counselling structure and more sophisticated means of communication with our valuable blood donors.[44]

A retrospective longitudinal study was conducted in state of Uttarakhand region of India by Nitin Agarwal to ascertain the response of voluntary blood donors following a call or letter informing them of their reactive status. Between January 2010 and December 2011, a 2-year period, they evaluated the reactive donations. 0.87 percent of the population was reactive for several markers over the research period. The response rate among donors reactive for the hepatitis B virus was highest among them, at 68.4%, and after their first visit, 6% of donors failed to follow up. Of these, 59.8% positively reacted to the notification calls and attended counselling. 22.3% of patients stopped receiving treatment. Therefore, only 182 donors, or 43.7%, were continuing or had completed their therapy at the end of the first six months of follow-up. These findings imply a lack of screening test comprehension and a lack of adequate medical expertise. Due to the poor response rate of reactive blood donors in developing nations, the necessity for post donation counselling is paramount.[45]

Arora et al.'s study in Southern Haryana has also supported the value of pre-donation and post-donation counselling. From October 2002 until April 2006, a 3.5-year retrospective research was conducted. A total of 5849 donors, including 1839 voluntary donors and 4010 replacement donors, were tested. The sero-prevalence of HIV was 0.3% in these donors, and no willing donor got a reactive response. Due to careful donor counselling and selection, the study revealed very low sero-prevalences of HIV, HBV, HCV, and syphilis.[46]

Study done by Raturi et al, their main objective was to examine and evaluate the sero-reactive donor response to post-donation notification and counselling. Blood center was approached by sero-reactive donors for post donation advice after getting information of their test results from January 2016 to December 2017. Process of notification consisted of a postal letter and two phone calls, their privacy is maintained during the process. The respondent received advice from the medical officer he then mentioned the relevant specialties for further management. Disclosure of blood donor’s sero-reactivity is an important issue in the public domain. The sensitivity of the condition requires both confidentiality and an atmosphere of trust during notification. This study concluded that repeat blood donors showed excellent response. Response rates could be increased by educating donors and contacting sero-reactive donors repeatedly.[47]

The National Blood Policy in India heavily relies on voluntary blood donors because they are typically thought to be associated with low levels of transfusion-transmitted infections (TTIs), according to a study conducted by LP Choudhary and S Tetali in Kerala, India. Their research is divided into two parts: a quantitative analysis of TTI among donors to determine how many donors test positive for TTI, and a qualitative component in which blood bank staff are questioned about the systems in place to notify TTI-reactive donors. This article emphasises how vital it is for voluntary blood donors to be aware of their TTI reactivity status in order to safeguard both their own health and that of their partners by lowering the possibility of virus transmission. Health practitioners face an ethical conundrum with donor notification who may test positive but are unaware of their results due to the absence of adequate mechanism for test result disclosure. Therefore, it's important to carefully evaluate disclosure strategies without compromising the donor's privacy.[48]

Kotwal et al have performed an observational descriptive study over a period of 1 year in New Delhi. They evaluated TTI-reactive donors response rate after notification of their abnormal test results over 1 year as per their strategy that is three telephonic and two postal communications. During the study period, among the total donation of 15,322 units in a year, 464 blood donors were found to be TTI reactive. Out of these 464 TTI reactive cases, 284 were reactive for Hepatitis B surface antigen (HBsAg), 49 were Hepatitis C (HCV) positive, 47 were HIV positive and 84 were VDRL reactive. After being notified of their aberrant test findings for a period of one year using their technique of three telephone calls and two postal mailings, they analyzed the response rate of TTI-reactive donors. 464 blood donors out of a total of 15,322 units donated in a year throughout the study period were found to be TTI positive. Out of these 464 TTI-reactive cases, 284 were reactive for HBsAg, 49 were positive for HCV, 47 were positive for HIV, and 84 were reactive for VDRL. Their study makes it abundantly evident that donor notification and post-donation counselling are crucial components of the blood bank, together with the supply of information on serological status, evaluation of the significance of the donor's test findings, and referral for medical care. Only 49.4% of the blood donors could be effectively contacted from the provided data due to inadequate demographic details, which was the main limiting factor. The response rate was 98.2% out of the 229 donors who were contacted. These results were positive since they show that a significant portion of the notification message is acted upon when it is presented effectively. In their study, a huge majority (94.75%) of the notified donors contacted their health care experts when given clear

instructions to do so. The contacted donors' high response rate indicated that they were interested in learning the status of their test results.[49]

Study done in West Bengal, Eastern India among blood donors by Bhattacharya P et al to evaluate the prevalence of markers of human immunodeficiency virus (HIV), hepatitis B virus (HBV) and hepatitis C virus (HCV) among 1,13,051 and 1,06,695 voluntary blood donors screened in 2004 and 2005, respectively in Kolkata, Eastern India concluded the increasing endemicity of hepatitis viruses, syphilis and HIV among the voluntary blood donors of the community. They also conducted a pilot study on 1027 HBsAg negative donors to explore the presence of HBV DNA among hepatitis B surface antigen (HBsAg) negative but anti-HBc positive blood donors. Study results highlight the need for a more thorough and sensitive screening methodology for blood donations as they show a significant prevalence rate of HBV DNA among HBsAg negative but anti-HBc positive donors.[50]

In order to better understand donor records at the regional blood transfusion center (RBTC), JSS Hospital, which serves the Mysore district, Pallavi et al. conducted a retrospective five-year study between 2004 and 2008. By doing a physical examination and collecting medical history, care was taken to rule out professional donors. The presence of HBsAg, HCV, HIV, syphilis, and malaria were tested in all samples. Third generation kits (SPAN Co.) were used to perform manual read ELISA procedures for the serological assays for HBsAg, HCV, and HIV. Syphilis VDRL testing was performed. A quick, immunochromatographic test was conducted in one step to detect malaria antigen. 38,215 (97.84%) of the 39,060 screened donors throughout the study period were men, while 845 (2.16%) were women. 13,757 (35.22%) were replacement donors (RD), while 25,303 (64.78%) were voluntary donors (VD). HbsAg, HCV, HIV, and syphilis all had prevalences of 1.27, 0.23, 0.44, and 0.28 percent, respectively. There were no blood donors who tested positive for the malarial parasite. The prevalence of HBsAg, HCV, HIV, and syphilis in replacement donors was 1.23%, 0.23%, 0.54%, and 0.32%, respectively, while it was 0.36%, 1.22%, 0.20%, and 0.25% in voluntary donors. Their research revealed that men made up the majority of the donors, who were all willing participants. In comparison to voluntary donors, the replacement donors' positivity rate was higher across the board. We may therefore conclude from this study that more repeat and unpaid voluntary blood donors are needed by blood banks in order to provide safe blood to recipients. With the adoption of stringent donor selection criteria, sensitive screening tests, and the creation of stringent blood transfusion standards, it might be possible to lower the prevalence of TTI in the Indian context.[51]

In a study conducted in 2014 at AIIMS Delhi, by Chaurasia et al. screened 113,014 donors for TTIs, such as HIV, HBV, HCV, and syphilis, using serology and nucleic acid testing. Retests were performed on all reactive donors, and they were all informed of their status via phone or letter. Over a six-month of period, all initial reaction screens were monitored. Only 662 (23.3%) out of the 2,838 (2.51%) donors with reactive screening test results (1.38% HBV, 0.54% HCV, 0.27% HIV, and 0.32% syphilis) responded to notification. When compared to replacement donors, the voluntary donors' response rate (43.6% versus 21.2%) was higher. Only 373 (56.3%) receptive donors continued to attend referral specialities after their initial visit. The study's conclusion emphasises the significance of providing appropriate donor counselling and notifying all TTI reactive donors who choose to receive this information. It demonstrates the critical necessity for developing nationally accepted standards for alerting and monitoring reactive donors.[52]

Patel et al studied that in addition to all other measures such as donor screening and transfusion-transmitted infection (TTI) testing of donated blood, another tool to prevent transfusion-transmitted diseases is to discourage blood donations from reactive donors by informing them of their TTI reactivity status and providing them with counselling. Over the course of three years, this observational study was carried out in the blood bank of the South Gujarat State Tertiary Care Hospital's Department of Immunohematology and Blood Transfusion involving a total of 25,020 donors including 353 reactive donors. The blood bank counsellor advised reactive donors to report to the blood bank for individual counselling and retesting as well as referral to the appropriate department/integrated counselling and testing center/STD clinic of the hospital for further guidance after informing them of the abnormal test result. After being informed of their aberrant test findings, the response rate of TTI-reactive donors was evaluated. Results of this study were out of 353 TTI marker-reactive donors, it was possible to reach 320 (90.65%) reactive donors, of whom 261 (81.56%) responded positively to the notification and attended blood bank counseling and 59 (18.44%) informed the donor did not respond at all. Conclusions of this study was, 33 (9.35%) reactive donors could not be contacted due to incorrect or changed contact details, and among the 59 non-responsive donors, the main reasons were donor busyness, away from home and unwillingness to visit blood bank again.[53]

Sonam Kumari's study at the Gian Sagar Medical College and Hospital in Patiala, Punjab, India evaluated 116 (2.7%) donors with positive sero-reactive screening test results, including 41 (1%) HBV, 61 (1.4%) HCV, 12 (0.3%) HIV, and 2 (0.05%) reactive for both HIV and HCV (co-infection). None of the donors were reactive for syphilis. Only 41% of the contributors

(35.34%) responded to the notification. They discovered that voluntary blood donors responded less frequently (34.6% vs. 41.7%) than replacement donors. She had noticed that about 22 (53.7%) of sero-reactive donors who were counselled indicated a history of high-risk behaviour that had not been disclosed during donor registration and screening. She came to the conclusion that despite thorough donor screening and the self-exclusion option, donors conceal their high-risk behaviors and keep giving blood. In order to uncover the history of high-risk factors from such donors, pre-donation counselling must be implemented, as shown by this. In order to protect donor privacy during screening, pre-donation education and counselling, and post-notification counselling of reactive donors, suggestions must be made.[54]

One such study by Bhasker et al at was done at Department of Transfusion Medicine, Yashoda Hospital, Hyderabad, Telangana, India. This study was initiated to determine the percentage of alerted reactive donors who sought counselling, as well as to offer practical suggestions that would raise the percentage. Human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), and syphilis were TTIs that were serologically checked for in a total of 17025 donors. All TTI reactive donors were retested, informed of their results by phone, and summoned for follow-up testing, which was followed by in-person counselling and treatment referrals. They assessed 183 (1.07%) donors who had positive screening test results for reactive diseases, including 106 (57.9%) for HBV, 38 (20.7%) for HCV, 29 (15.8%) for HIV, and 11 (0.6%) for syphilis. All of these donors (100%) had given replacement blood. Only 58.4% (107) of donors could be personally communicated over telephone and only 49 (45.79%) of them returned for counseling. Three (6.1%) among the reactive donors knew their results earlier and 11(22.4%) donors had history of high-risk behavior. Conclusion they made that to achieve 100% response rate for contacted reactive donors, it is required to educate the donors at the time of donation about the various TTI, screening tests done, and the importance of informing them the test results.[55]

Study done by Basnotra et al at Department of Immunohematology and Blood Transfusion, Government Medical College, Jammu, Jammu and Kashmir, India analyzed that blood transfusion is associated with the risk of transmission of transfusion-transmitted infections (TTI) even after thorough mandatory screening of TTI blood units. In order to prevent disease transmission, it is important to inform donors of their sero-reactive status, inform them and counsel them at the blood center. This study investigates the response of various TTI reactive donors to post-donation counseling after notification and their retention in society as reactive donors. This was a retrospective study conducted in a tertiary care center from May 1, 2015 to

April 30, 2017. Reactive donors were recruited to the blood bank by telephone and letters. Center compliance reactive donors were retested, counseled and referred to the appropriate center for further management. Results: During the two-year period, 34,204 blood donations were made, of which 375[1.09%] were reactive donors. Of these HBV reactive 166/34204 (0.48%), HCV was 40/34204 (0.11%), HIV reactive donors make up 26/34204 (0.07%), Syphilis 138/34204 [0.40%] and there were five cases of co-infection, two cases of HIV+HCV, two cases of HIV+HBV and one case of HBV + syphilis co-infection. A total of 375 reactive TTI donors were identified, of which (227/375) 60.5% were contacted by telephone and letters and the remaining (148/375) 39.46% could not be contacted. Out of 227 contacted donors, only 117 donors applied for donor counseling, i.e. a response rate of 51.54%. They concluded that donor notification is an effective method of reducing TTI, but is undermined by failure to communicate with donors, resulting in a persistent burden of blood-borne infection risk.[56]

One more retrospective study done by Divya N S et al by reviewing the blood donor registry maintained in a blood bank from 2014 to June 2020 in the Department of Pathology- Blood Bank, Chamarajanagar Institute of Medical Sciences, Chamarajanagara, Karnataka, India. Objectives of their study were: 1) To know the seroprevalence of transfusion-transmitted infections in healthy blood donors; 2) To study the reactions of reactive donors to counseling; 3) Design a safe blood collection and dispensing strategy to reduce TTI. All blood donors were clinically examined and asked to complete a questionnaire and consent according to standard guidelines. Mandatory screening tests proposed by the WHO for HIV, HBV, HCV and syphilis were performed and the prevalence among voluntary and surrogate donors was calculated. Data analysis revealed that the number of replacement blood donors was more than voluntary donors. TTIs were more common among replacement donors compared to volunteers. Most reactive donors were among men aged 26 to 35. The prevalence of HIV, HBV, HCV, syphilis and malaria were 0.062%, 0.655%, 0.006%, 0.146% and 0.006% in our study. Among reactive donors, there were 108 (85.71%) respondents compared to 18 (14.28%) non-responders. Conclusion made from the study was to make strict criterias for donor selection and donor counseling before donation with appropriate privacy. Counseling reactive donors helps them seek treatment as soon as possible along with their undetected ongoing blood donations. Based on the knowledge of the seroprevalence rate and the response of sero-reactive donors, the government and health administration should develop and implement a policy for safe blood collection and transfusion.[57]

Sharma et al used responses to anonymous mail surveys from the retroviral epidemiology donor survey Study (REDS), a multicenter project funded by the National Heart, Lung, and Blood Institute, to assess blood donors' knowledge of HIV and AIDS transmission and screening tests by demographics and determine the association of that knowledge with that of screening test reactivity and unreported deferral risks (UDR). Weighted chi-square testing and logistic regression analysis were used to compare the groups. Four percent of the donors believed that receiving an HIV infection as a result of blood donation was very likely or moderately likely, and twenty percent believed that receiving an HIV infection as a result of receiving blood transfusions had a comparable risk. Only 60% of the donors were aware that the screening tests on hand might not catch a recent illness. 37 percent of respondents either didn't know or thought donating blood for HIV testing was appropriate. Those who answered knowledge questions wrong were more likely to be under 25 years old, a member of a minority, less educated, not born in the US, or first-time donors. They were also more likely to have a higher prevalence of test reactivity. They came to the conclusion that new approaches to the current donor screening process should be developed in order to improve donor awareness of the participation of high-risk behaviours so that blood banks can discourage such high-risk individuals from donating blood.[58]

According to a study by Peterson et al, screening all donors for HIV-1 antibodies and deferring potential high-risk donors for HIV-1 infection significantly reduced the spread of the human immunodeficiency virus type 1 (HIV-1) through homologous blood transfusions in the US. Twenty blood centres' records of HIV-1 sero-reactive donors were examined in order to assess the US blood supply's safety and make suggestions to improve it. Out of 2,192,000 donors tested from June 1988 to August 1989, 829 (0.04%) were found to be sero-reactive; 512 donors underwent interviews. 56 percent of the 388 seropositive men had sex with other men, 10% had used drugs intravenously, 8% had sex with intravenous drug users, and 27% had no known risks. Of the 124 women who tested positive for the virus, 58% had sex with men who were at risk for HIV (81% of whom used drugs intravenously), 5% had used drugs intravenously, and 41% had no known risk. Minority racial and ethnic groups comprised 68% of seropositive donors (black, 38%; Hispanic, 30%) and roughly 14% of total donors. The 157 individuals with no known risk shared more demographic traits and syphilis and hepatitis B serologic test findings with HIV-1-seropositive donors with known risk than with seronegative donors. Out of an estimated 93,100 blood donors who work in the healthcare industry, three reported infections that were likely acquired at work. The study's significantly reduced HIV-1

seroprevalence found that, even in regions with a high incidence of acquired immune deficiency syndrome (AIDS), the donor deferral process was quite efficient. As a result, there was little chance of HIV-1 infection through transfusion. To increase transfusion safety, more measures must be taken to prevent high-risk persons from donating, such as those who have had heterosexual contact with intravenous drug users and men who have had gay relationship, particularly among black and Hispanic potential donors.[59]

One study was conducted by the Department of Surgery and Global Health Sciences at the University of California, San Francisco, and the Public & Environmental Health Research Unit, Nutrition and Public Health Intervention Research Unit, and the Health Services Research Unit at the London School of Hygiene & Tropical Medicine in London, UK. Jayaram et al. estimated the risks of contracting HIV, hepatitis B virus (HBV), or hepatitis C virus (HCV) from committing a single unit of blood in sub-Saharan Africa. Three factors were included in the mathematical model they developed to quantify transfusion risks across 45 sub-Saharan African nations: the risk of a contaminated unit getting into the blood supply, the risk of the unit being administered to a patient, and the risk of the recipient becoming infected. The prevalence of infection in donors, the sensitivity of the test, the scope of blood testing, and the susceptibility of receivers were all factors. The model was parameterized using information from the World Health Organisation (WHO) African Region and a thorough literature assessment. Uncertainty in the risk estimations was measured using probabilistic sensitivity analysis. The study's computed results suggest that in sub-Saharan Africa, the median overall risks of contracting HIV, HBV, or HCV from receiving blood transfusions were 1, 4.3, and 2.5 infections per 1000 units, respectively. If annual transfusion requirements predicted by the WHO were satisfied, transfusions alone would be responsible for 28,595 HBV infections, 16,625 HCV infections, and 6,650 HIV infections each year. According to sensitivity analyses, the actual hazards might possibly be greater. In sub-Saharan Africa, this study was the first to rigorously assess the risks of transfusion-transmitted infections.[60]

Blood banks are primarily responsible for giving safe blood, but by informing blood donors of positive screening results, according to a study by Lopez-Balderas et al., they also indirectly contribute to the fight against the spread of infectious illnesses. Countries differ in their notification procedures, and notification rates are typically low. In this study, the notification rate of healthy and infection-positive blood donors at CETS-Veracruz was examined. 1,585 donors (3.79%) out of a total of 41,790 donors who were analyzed tested positive for one or more infectious markers. Only 4,163 people (9.96% of the total) received their serological

findings' information. 157 positive donors were contacted by phone; 91 (57%) of these donors went back to the blood bank to get their results. Only 17.48% of donors who tested positive received notifications on average. Anti-HBc had the highest notification rate (26.63%), whereas HBsAg had the lowest rate (4.17%). Age had a substantial impact on donor return: compared to the rate for all age groups, donors aged 18–24 and 25–39 were 4.71 and 1.64 times less likely to return donors, respectively. The pre-donation information regarding the potential for transfusion-transmitted infections and the significance of return to donor outcomes did not seem to have any effect, as the notification frequency was lower than rates reported elsewhere. According to these findings, CETS-Veracruz should enhance donor data registration and communication systems to raise reporting rates, and donor reporting studies should be carried out in other Mexican blood banks to evaluate return rates at the national level.[61]

In a study by Moyer et al., all blood donors in the United States who underwent post-donation testing to check the presence of the hepatitis B surface antigen (HBsAg) were informed; if the test result was positive, the main means of notification was by letter. To ascertain the efficacy of this notification strategy in enticing HBsAg positive donors to seek medical attention and take preventive measures, 54 donors who tested HBsAg-positive while donating at the American Red Cross Blood Services, Atlanta Region, between January 1987 and July 1989 were interviewed. The recommendation in the letter to consult with a doctor was the only factor that motivated 39 donors (72%) to seek medical assistance after being notified. Compared to donors who did not seek medical attention, donors who did were more likely to understand that the blood test was abnormal or that they were infected and there were more are likely to understand how the hepatitis B virus is transmitted and that a vaccine is available. However, the differences were not significant. Only one-third of donors who sought medical attention received prophylaxis, and less than half of those who did received appropriate guidance for contacts' protection. Personal and telephone interviews with donors, notification letter review, and hepatitis B educational programs were designed.[62]

Recall and referral of sero-reactive donors

The donor who has consented to be contacted by the blood collection center in case of any abnormal test results should be recalled so that they can be informed about the initial sero-reactivity of transfusion transmitted infection screening tests. This consent is part of the pre-donation counselling and should be well documented. The blood center should repeat the test using the same technique using the pilot tube/ sample from the blood bag prior to labelling the

donor as initial sero-reactive and recalling for a referral. The blood collection center should make appropriate efforts to contact (by phone or letter) the sero-reactive donor for recall, and the process should be documented on record. The screening results should not be informed on the phone.

All recalled donors should be offered post-donation counselling and referred to appropriate facilities for further counselling, confirmation, and management. The donor should be counselled not to donate till the results of his diagnostic tests are clear. Suppose the initial sero-reactive donor does not return to the blood center despite three consecutive weekly attempts. In that case, the list of HIV initial sero-reactive blood donors should be shared with the linked ICTC confidentially under guidance from the State AIDS Control Society. All blood donors found to be sero-reactive for HBV, HCV, syphilis, and malaria shall be referred to appropriate clinical specialities for retesting, confirmation and further management. Confidentiality should be maintained at all steps in donor recall and referral. Result seeking blood donor, even if non-reactive, should also be informed of their transfusion-transmitted infection screening status with reiterated counselling to remain negative and continue to donate blood.[4]

The Recall and Referral Mechanism for Initial Sero-reactive Blood Donors in as per NACO GUIDELINES are as follows. The Information of test positive results was provided to:[4]

- Donors who have consented to be contacted by the blood bank in case of an abnormal test result should be recalled to the blood bank so as to inform them about initial sero-reactive result of transfusion transmitted infection (TTI).
- Donors should be provided post donation counseling prior to referring to appropriate medical services for confirmation of diagnosis, follow up and treatment whenever necessary.
- Adequate efforts must be made by the blood bank staff to contact the initial sero-reactive blood donors for recall-referral and the process should be documented on record.
- Result seeking blood donors, even if non sero reactive, should also be informed of their TTI status with reiterated counseling to remain negative and continue to donate blood.
- State AIDS Control Societies shall make available updated list of ICTC along with contact details of counselors to all licensed blood banks.

Duties of a blood bank as per NACO GUIDELINES:

- Consent of the blood donor shall be taken for screening tests and to be informed of the results thereof at the time of blood donation.
- Blood bank shall repeat the test using the same technique using the pilot tube/ sample from blood bag prior to labeling the donor as initial sero-reactive and recalling for referral.
- All initial sero-reactive blood units shall continue to be discarded as per standard operating protocol of blood bank and compliance to Biomedical Waste Management Rules 2016.
- All initial sero-reactive donors shall be recalled, offered post donation counseling and referred to appropriate facility for further counseling, confirmation and management.
- A standard referral format for the same shall be used and blood bank shall maintain all records of recall and referral.
- Signatures of the blood donor shall be obtained on the consent form attached to the referral format so as to avoid litigation due to discordant results of screening at blood banks and confirmatory tests of reference center.
- In case, the initial sero-reactive donor does not return to blood bank despite three consecutive weekly attempts, the list of HIV sero-reactive blood donors should be shared with the linked ICTC under shared confidentiality under guidance from State AIDS Control Society.

Blood donors referred to ICTC and to Clinicians as per NACO:

- Prior consent shall be taken from the donor for both conduction of screening tests and to be informed of result of testing at the time of donation by the blood bank along with complete contact details and telephone number.
- All blood donors who are initially detected as having HIV seroreactivity at a blood bank must be directed to an Integrated Counselling and Testing Centre (ICTC) for counselling and confirmation.
- All blood donors found to be sero reactive at blood bank for HBV, HCV, Syphilis and Malaria shall be referred to clinicians in the OPD of associated

hospitals or others for assessment and re-testing, followed by appropriate treatment by assessing clinician or referral to higher center for the same.

- Blood bank shall fill out referral form as per standard format and send it along with referred donor.
- All blood donors found to be positive for HIV, HBV, HCV, Malaria and syphilis should be counseled to defer themselves and their spouses/partners from the donor pool, in addition to appropriate management.
- Confidentiality shall be maintained at all levels.[4]

4. AIM AND OBJECTIVES:

Aim:

- The aim of our study is to analyze the response of reactive blood donors towards post donation counseling.

Objective:

1. To see response of TTI reactive/positive donors towards post donation counseling
2. To enables the Blood transfusion services to collect demographic and risk exposure information about TTI reactive/positive donors.
3. Formulation of strategies to inform donors about their sero-reactive status and advise them to take necessary medical interventions at the earliest.

5. MATERIALS AND METHODS

The study will be conducted in the "Department of Transfusion Medicine and Blood Bank, AIIMS, Bhopal" after obtaining ethical approval from IHEC.

Study design: This is a retrospective longitudinal study and data of reactive donor notification and counseling will be used for the study.

Study period: After ethical approval of the study data of notification of reactive blood donors from November 2018 to 2023 was used. Donor notification and counselling is a routine procedure of Department of Transfusion Medicine and Blood Bank. In this study only data of notification and counselling will be used for study.

Sample size: The sample size was calculated considering the change as 40%, with confidence level of 95% and 10% relative allowable error and power of 80. By applying the formula:

n = Z(1-a/2) (1-a/2) x p (1-p) / d2

Z= Value of area under the normal curve (1.96 for 2-sided test; 5% significance level)

a= Level of significance (0.05)

p= Prevalence (proportion- 40%)

d= Relative Allowable error (10%)

n= Sample Size

The sample size of all reactive donors (notification and counseling data) from November 2018 to 2023 will be used for the study considering 50% response rate for post donation counseling and observational study design.

a = 0.05

p = 50% or 0.5

q = 1-0.5 = 0.5

d = absolute deviation of 5%

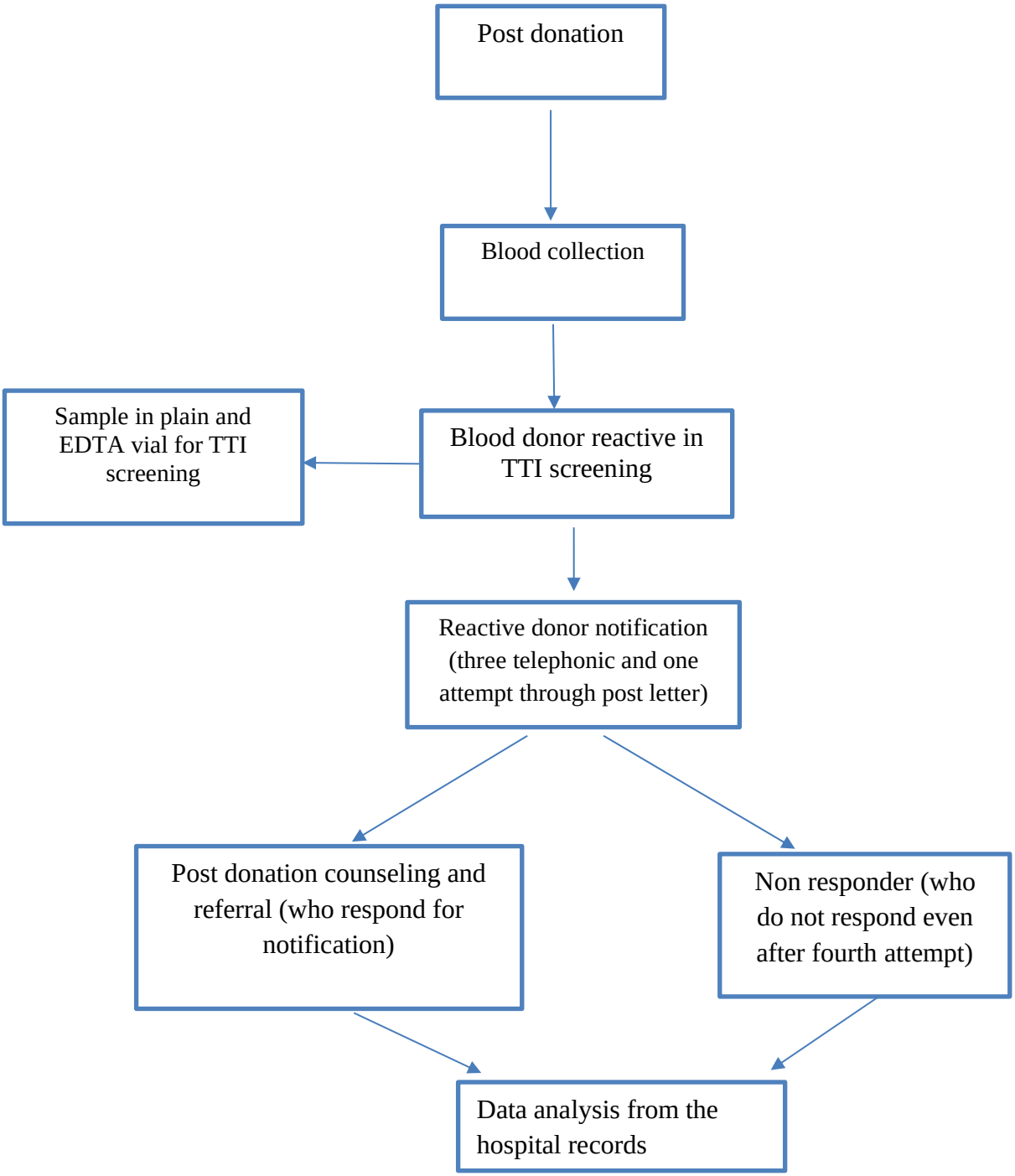
n = (1.96) (1.96) *0.5*0.5/ (0.05) (0.05)

= 384.

Therefore, around 400 reactive donors's notification and counseling data was used for the study.

1. Transfusion Transmitted infection testing of blood donors:
   Post blood donation five mandatory Transfusion Transmitted infection (TTI) screening tests for HIV, Hepatitis B, Hepatitis C virus, malaria and syphilis routinely performed on blood collected in pilot tubes from post donation samples.
2. Post donation counseling of reactive blood donors:
   The blood donors who were initially reactive to HIV, HBsAg, and HCV by semi-automated ELISA method, syphilis by RPR method and malaria by rapid card method were notified and this is routine procedure in the department. If not responded by first attempt, reactive donors were called at three different times at one-week interval. Last 4th attempt was done by notifying donors through post letter. Donors who did not respond even after fourth attempt were considered non-responder.
   Reactive donors who responded by notification were counseled properly by trained counselor/doctor. Demographic details, previous blood donation history and risk exposure information was collected from reactive blood donors as per routine procedure in blood bank. They were again counseled of their health status and referred to Integrated Counseling Cum Testing Center (ICTC) if their blood sample reactive for HIV. For HBsAg, HCV and malaria reactive donors were referred to medicine department and RPR reactive donors were referred to dermatology department for further management. In this study only data of notification and counselling will be used for study.

Chart of the study design


Post donation
Blood collection
Sample in plain and EDTA vial for TTI screening
Blood donor reactive in TTI screening
Reactive donor notification (three telephonic and one attempt through post letter)
Post donation counseling and referral (who respond for notification)
Non responder (who do not respond even after fourth attempt)
Data analysis from the hospital records

Donor notification is a routinely done procedure in the department of blood bank as per Drugs and Cosmetic Rules Act. Data analysis will be done from hospital records and only the data of notification and counselling will be used for the study.

6. STATISTICAL ANALYSIS:

Collected data was entered in the MS Excel spreadsheet, coded appropriately and later cleaned for any possible errors. The analysis was done by using MS-Excel/SPSS. All tests were two-sided and were done keeping $p < 0.05$. The normality of data was assessed by Kolmogorov-Smirnoff test and as per the data distribution parametric test was used for quantitative data and non-parametric test was used for qualitative data.

Normally distributed data was presented as means and standard deviation, or 95% confidence intervals (CI). All tests were performed at a 5% level of significance; thus, an association will be significant if the p value was less than equal to 0.05.

Paired & unpaired "t" test was used to calculate difference of means for quantitative variables. Pearson correlation analysis was used to calculate the relation between quantitative variables. For qualitative variables chi square test/fischer's exact test" was applied.

Demographic parameters/Data of reactive donors (Data collected from the records)

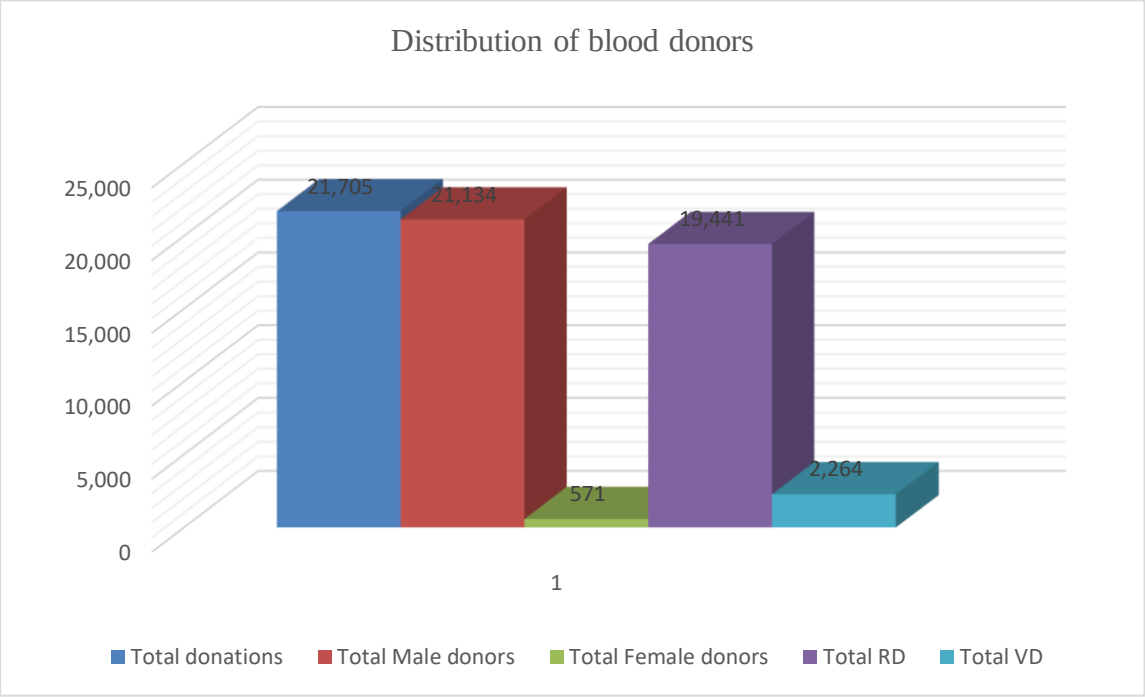
S.N.	Parameters
1	State/Place of residence
2	Age: (18-30yr), (31-45yr) and (46-65yr)
3	Gender: M/F
4	Religion
5	Marital Status- Married/ Unmarried
6	Educational status: Graduate and above/ below graduation
7	Occupation
8	Annual Income
9	Voluntary donor/ Replacement donor
10	Donation status: 1st time/ Repeat (how many times)

High risk behaviour
Homosexual males
Person with multiple sexual partners
Injecting drug users
Female sex workers
Others as determined by Medical Officer

7. RESULT:

Total 21,705 blood units collected and were screened for transfusion transmitted infections (TTI) from November 2018 to 2023 at Department of Transfusion medicine and blood bank, AIIMS Bhopal. Total Replacement and voluntary donors were 19,441 (89.56%) and 2,264 (10.43%) respectively who donated blood during the study period. Total male donors were 21,134 and total female donors were 571 which contributes to 97.36% and 2.63% respectively of the total donations as depicted in figure1.

Figure 1: Depicts distribution of blood donors in our study

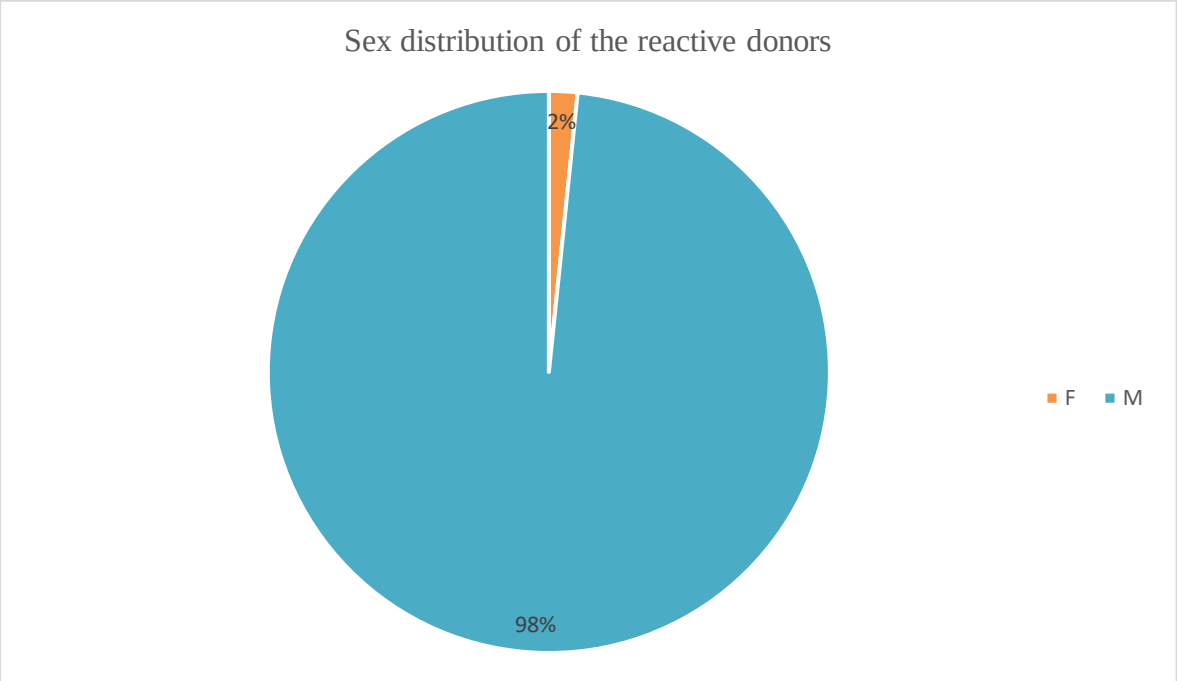


7.1. Demographic distribution of Transfusion Transmitted Infections (TTI) reactive donors:

a) Gender wise distribution of reactive donors:

Out of the 428 reactive donors, 238 (98.7 %) donors were male while only 03 (1.2 %) donors were female [Figure 2].

Figure 2: Pie chart showing sex distribution of TTI reactive donors, F=females and M=males.



b) Distribution according to type of donors:

Out of 428 TTI reactive donors, replacement donors were 387 (90.4%) and voluntary donors were only 41 (9.57%) depicted in table 1.

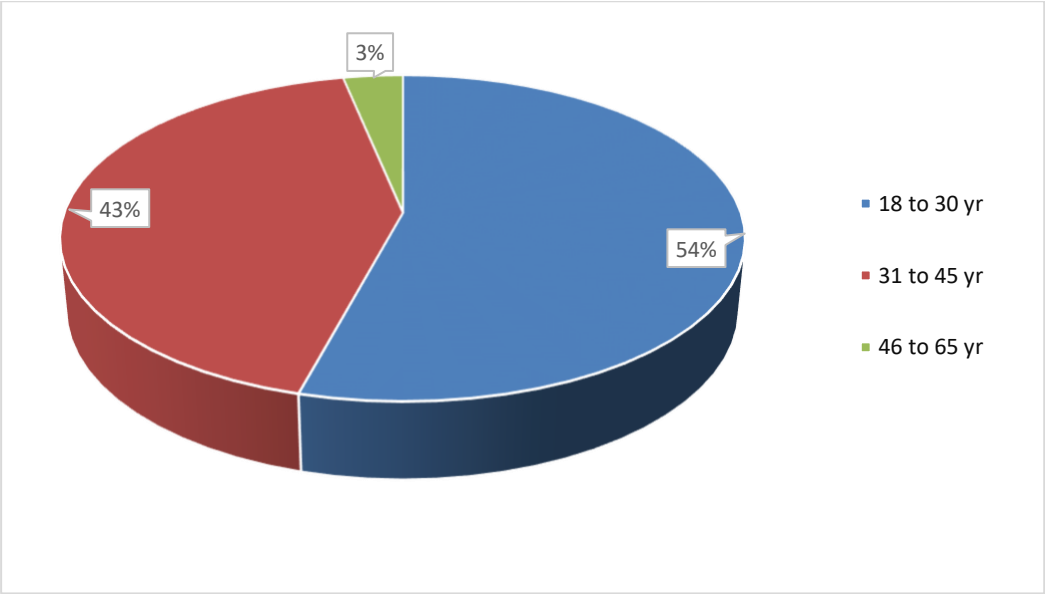
Table 1: Voluntary and replacement donors among the TTI reactive donors

Donor type	Frequency	Percentage (%)
Voluntary Donors	41	9.6
Replacement donors	387	90.4

c) Age-wise distribution of reactive donors:

Reactive donors were divided into three age groups: 18 to 30 years, middle age 31 to 45 years and 46 to 65 years). Mean age of the sero-reactive donor was 29.71 (18 to 65) years. Majority of the donors 232 (54.2%) were in the age group of 18-30 years. 182 (42.5%) donors were from the age group of 31-45 years and 14 donors (3.27%) were in the age group of 46-65 years of age as depicted in figure 3.

Figure 3 showing pie chart representing age distribution among TTI reactive donors



d) Distribution of reactive donors according to place of residence:

Out of 428 reactive donors 237 were came from rural regions which contributes to 55.37%and 191 from urban regions contributing to 44.62% as depicted in table 2.

Table 2: Rural and urban distribution among the TTI reactive donors

Place of residence	Frequency	Percentage (%)
Rural	237	55.37%
Urban	191	44.62%

e) Distribution of TTI reactive donors according to occupation:

TTI reactive donors were divided into eight categories on the basis of occupation as given in donor records, shown in table 3. 55 (12.85%) reactive donors were businessman, 38 (8.87%) reactive donors were farmers, 149 (34.81%) were from private job, 43 (10.04%) were drivers, 58 (13.55%) each were students and labourers, 21 (4.90%) were from government job and 6 (1.40%) were unemployed or categorised as not working. Highest number of reactive donors were from private job category and lowest number were from unemployed/not working category.

\

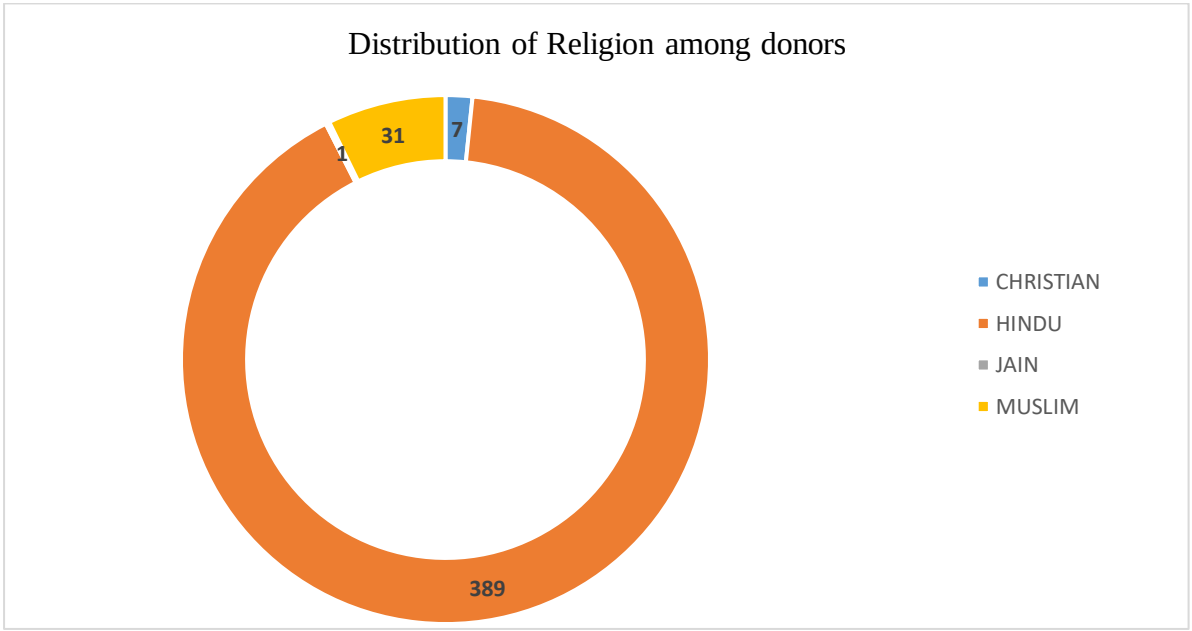
Table 3: Distribution of reactive donors according to their occupation

Occupation	**No. of reactive donors (428)**	**Frequency (%)**
Business	55	12.85%
Farmers	38	8.87%
Private job	149	34.81%
Driver	43	10.04%
Students	58	13.55%
Labourer	58	13.55%
Government job	21	4.90%
Unemployed/Not working	6	1.40%

f) <u>Distribution of reactive donors according to religion:</u>

Out of total 428 reactive donors, 389 (90.88%) reactive donors from Hindu religion, 31 (7.24%) from Muslim religion, 7 (1.63%) were Christians and only 1 (0.23%) were following Jainism as shown in figure 4

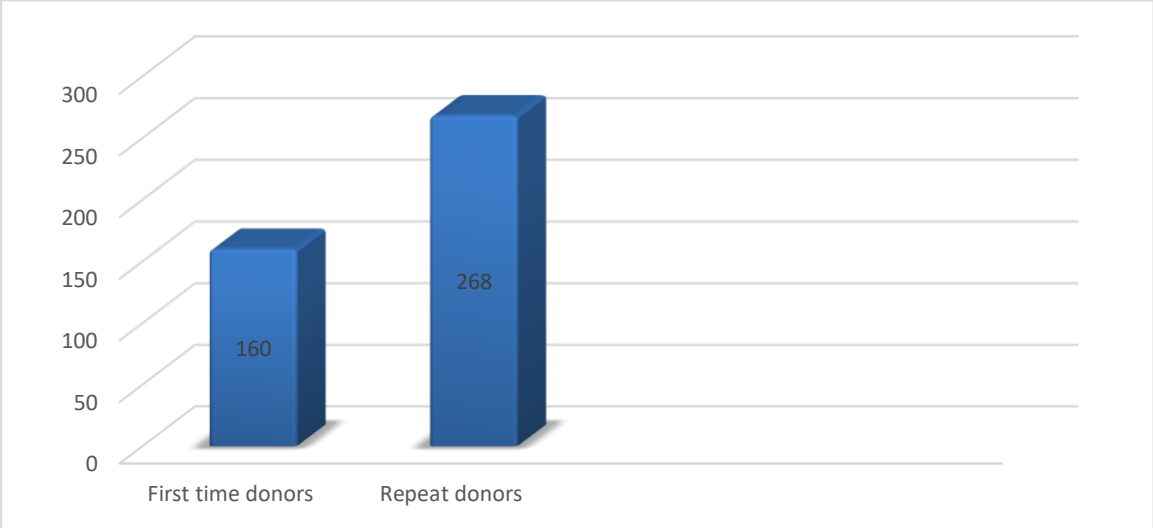
Figure 4 showing religion wise distribution of TTI reactive donors



g) Distribution of TTI reactive donors according to donation status:

Out of total 428 reactive donors 160 had donated for the first time while remaining 268 reactive donors had donated previously as depicted in figure 5

Figure 5 showing TTI reactive first-time donors and repeat donors



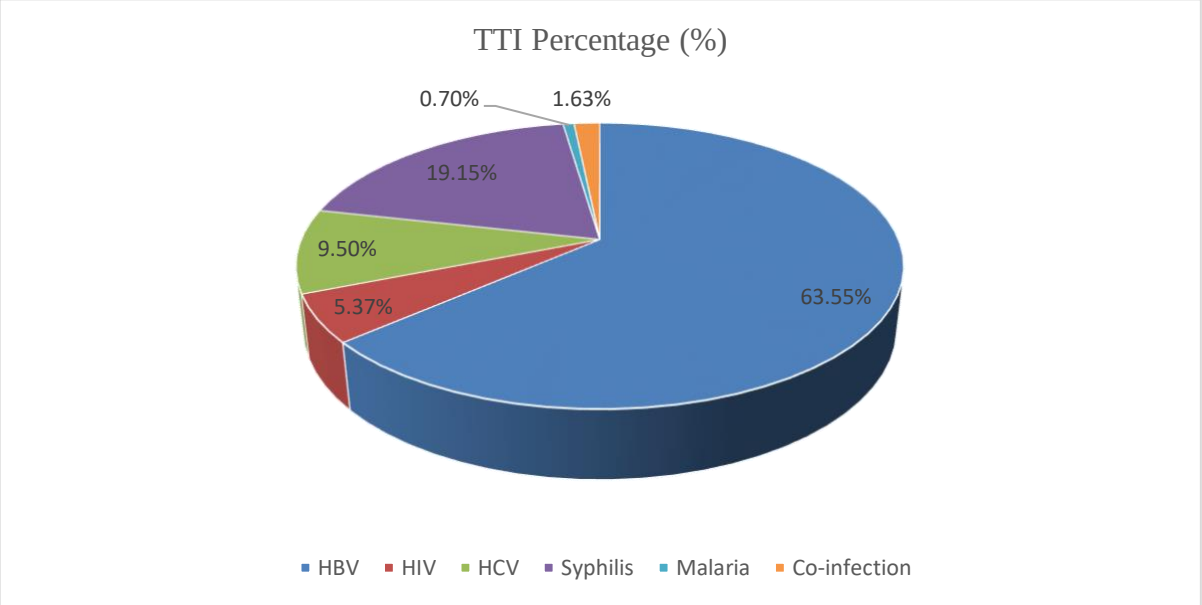
h) Distribution of reactive donors according to the TTI status:

Among reactive 428 donors, 272 (63.55%) were reactive for HBsAg, 41 (9.5%) for HCV, 23 (5.37%) for HIV, 82 (19.15) for syphilis and 3 (0.70%) for malaria. Seven (1.63%) donors were having co-infection that is reactive for two infections simultaneously among which two were reactive for both HIV and Syphilis, two for HBsAg and Syphilis, two for HIV and HBsAg and one was reactive for both HBsAg and HCV, depicted in table 4 and figure 6.

Table 4 showing TTI distribution among reactive donors

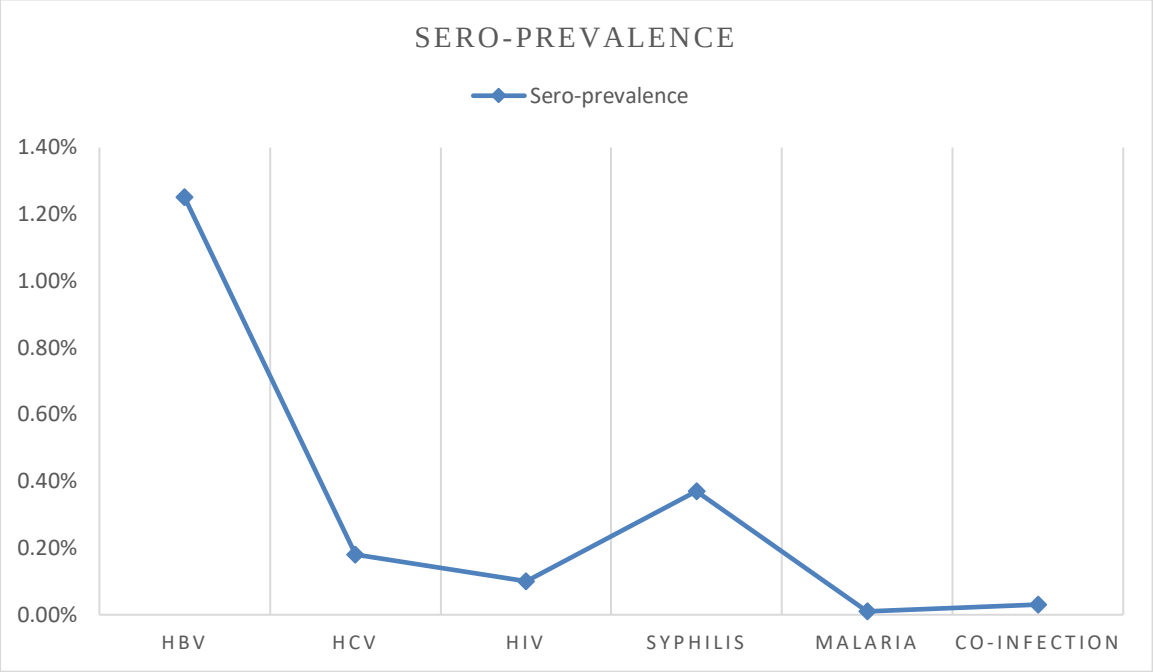
TTI Reactive status	Frequency (n)	Percentage (%)
HBsAg reactive	272	63.55%
HIV reactive	23	5.37%
HCV reactive	41	9.5%
Syphilis reactive	82	19.15%
Malaria reactive	03	0.70%
Co-infection	07	1.63%

Figure 6: Pie chart showing percentage-wise distribution of TTI status.



Sero-prevalence rate of various TTI markers in our study was 1.25% for Hepatitis B virus, 0.18% for HCV, 0.10% for HIV, 0.37% for Syphilis, 0.01% for Malaria and 0.03% for Co-infection. Graphical representation of sero-prevalence rate of various TTIs as given in figure 7.

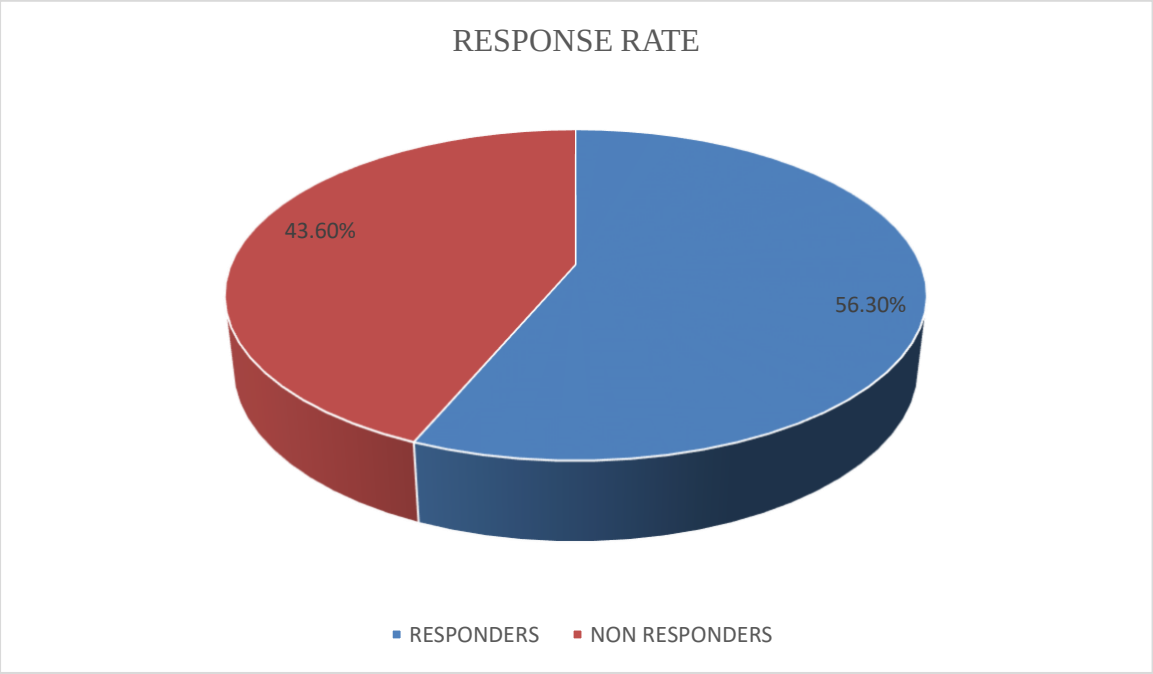
Figure 7 showing TTI wise sero-prevalence rate.



Response rate

Out of total 428 TTI reactive blood donors 241 reported to the blood center which contributes to 56.3% of the total reactive donors, they were counselled and referred for further management and clinical follow up. This 56.3% counselled donors were called as responders while remaining 187 (43.6%) reactive donors who had not responded to any of the notification (3 telephonic calls and one postal letter) were called as non-responders depicted in Figure 8.

Figure 8 showing the response rate among TTI reactive donors in present study



Out of total 428 reactive donors 187 (43.6%) have not responded to any of the notification (three telephonic calls at one week of interval and one post letter) and did not report to blood center for further counselling and referral. These were called as non-responders. Reasons for no response among reactive donors according to data taken from hospital records were following 18.4% of reactive donors did not attend the call, 17.1% given wrong contact number, 9.2% donor's phone was switched off, 52.6% donors attended the call but didn't report to the blood center and 2.6% reactive donors denied to report to the center. Out of total 241 responders 95.4% responded to telephonic notifications and 4.5% responded to postal notification.

7.2. Response rate of TTI reactive donor according to demographics

a) Response rate among gender:

Out of 421 reactive males 238 (56.5%) responded to the post donation counselling while 3 out of seven (42.8%) reactive females responded to the post donation counselling, depicted in figure 9 and table 5.

Figure 9 showing the response rate among males and females

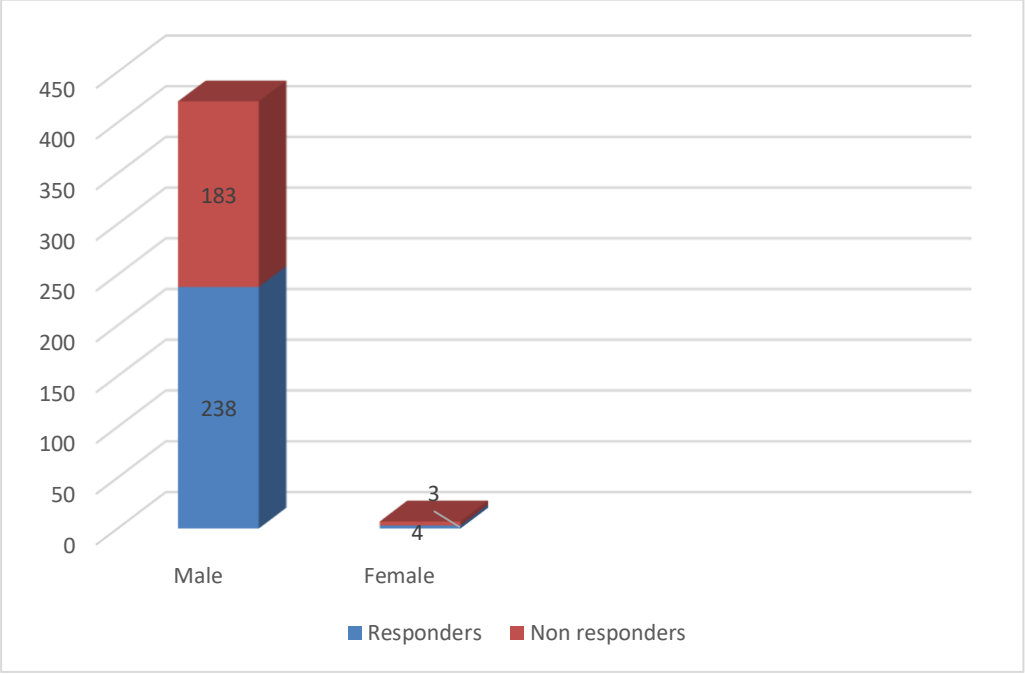


Table 5 showing association between gender and response rate comparison of response btw male and fem reactive donor

	Total number	Response	No Response	OR (Unadjusted)	95% CI	P-value
Male	421	238 (56.5%)	183	1.73	0.29-11.97	0.704
Female	7	3 (42.8%)	4			

Response rate among male and female were compared and analyzed. Odds ratio found was 1.73 and P value calculated as 0.704 which shows that association between gender and response rate was not significant as shown in table 5.

Figure 10 response rate among VD and RD

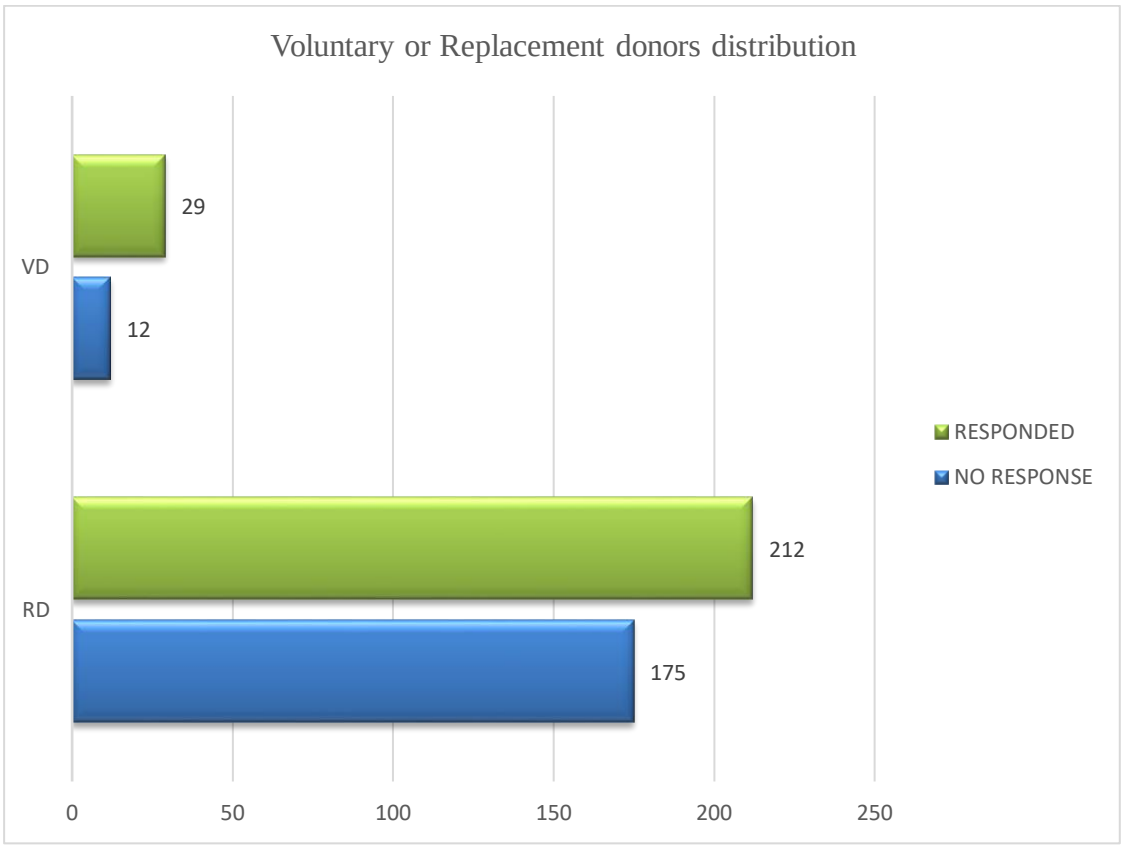


Table 6. showing association between donor type and response rate

Type of Donor	**Total number**	**Response**	**No Response**	**OR (Unadjusted)**	**95% CI**	**P-value**
Voluntary donor	41	29(70.7%)	12(29.3%)	1.99	0.98-4.02	0.050
Replacement donor	387	212(54.7%)	175(45.2%)			

Data of response rate among voluntary donors and replacement donors were and compared as shown in table. Association between type of donor and response rate was found to be significant as P value was 0.050 as shown in table 6.

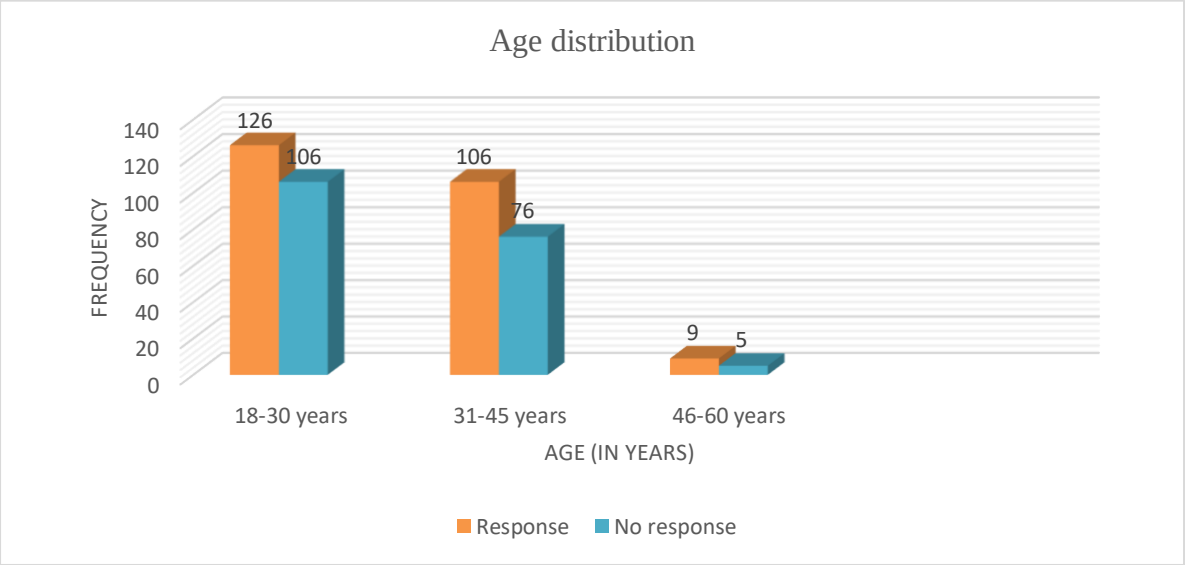
b) <u>Comparison of response rate according to age-wise distribution:</u>

Out of 232 reactive donors among 18 to 30 years of age 126 (54.3%) were responded, 106 (58.2%) responded out of 182 reactive donors among 31 to 45 years of age and 9 (64.3%) out of 14 reactive donors among age group 46 to 60 years of age responded to post donation counselling which was the highest response rate among age wise distribution of reactive donors but not significant as p value found was more than 0.05 shown in table 7 and figure 11.

Table 7 showing association between age and response

Age (years)	Total number of reactive donors	Response	No Response	P- value*
18-30	232	126 (54.3%)	106	0.629
31-45	162	106 (58.2%)	76	
46-54	14	9 (64.3%)	5	

Figure 11: showing response rate among different age groups.

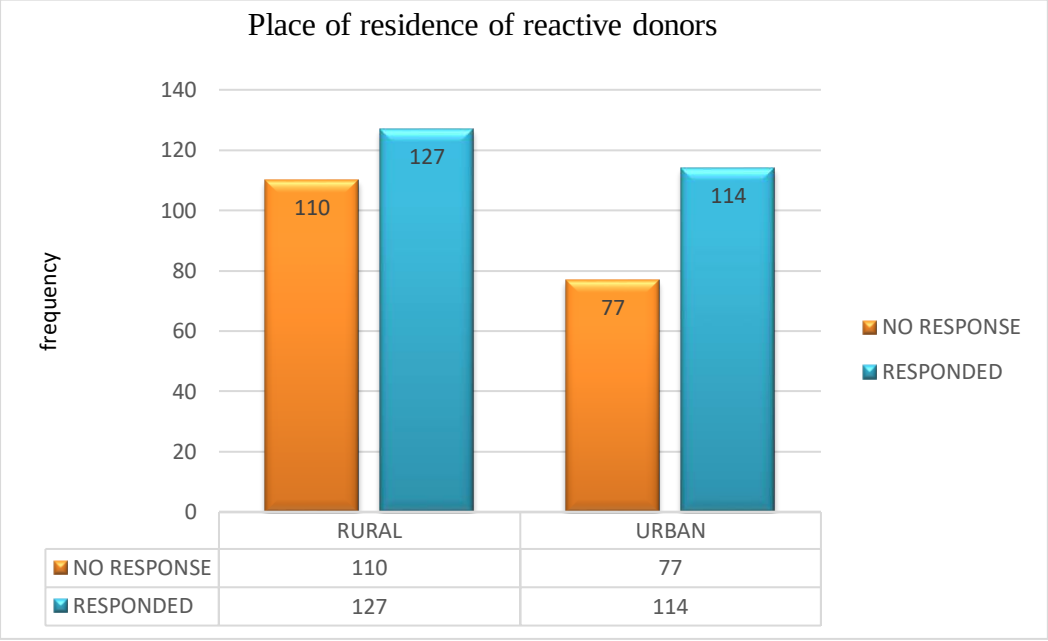


c) Comparison of response rate in reactive blood donors according to place of residence: Out of 237 sero- reactive donors living urban areas, 114 (59.7%) were responded while 127(53.6%) out of 191 sero-reactive donors from rural areas responded to post donation counselling as shown in figure 12. Response rate was higher in urban areas but not significant as P value calculated (0.205) was found more than 0.05 as shown in table 8.

Table 8 showing association between place of residence and response

Place of Residence	Total number	Response	No Response	OR (Unadjusted)	95% CI	P-value
Rural	237	127(53.6%)	110(46.4%)	1.28	0.87-1.88	0.205
Urban	191	114(59.7%)	77(40.3%)			

Figure 12 representing urban/rural distribution of reactive donors



d) Comparison of response rate among reactive donors according to occupation:

Reactive donor's response rate was also evaluated according to their occupation and found that response among government job (71.4%) among unemployed or not doing any work were (16.6%), among businessman (56.3%), farmers (55.2%), private job (60.4%), driver (19%), students (58.6%), labourer (30%). Table 9 and figure 13.

Association between response rate and occupation was found to be insignificant as p value calculated was 0.1989 which more than 0.05, as shown in table 9.

Figure 13: Graph showing occupation distribution of reactive donors

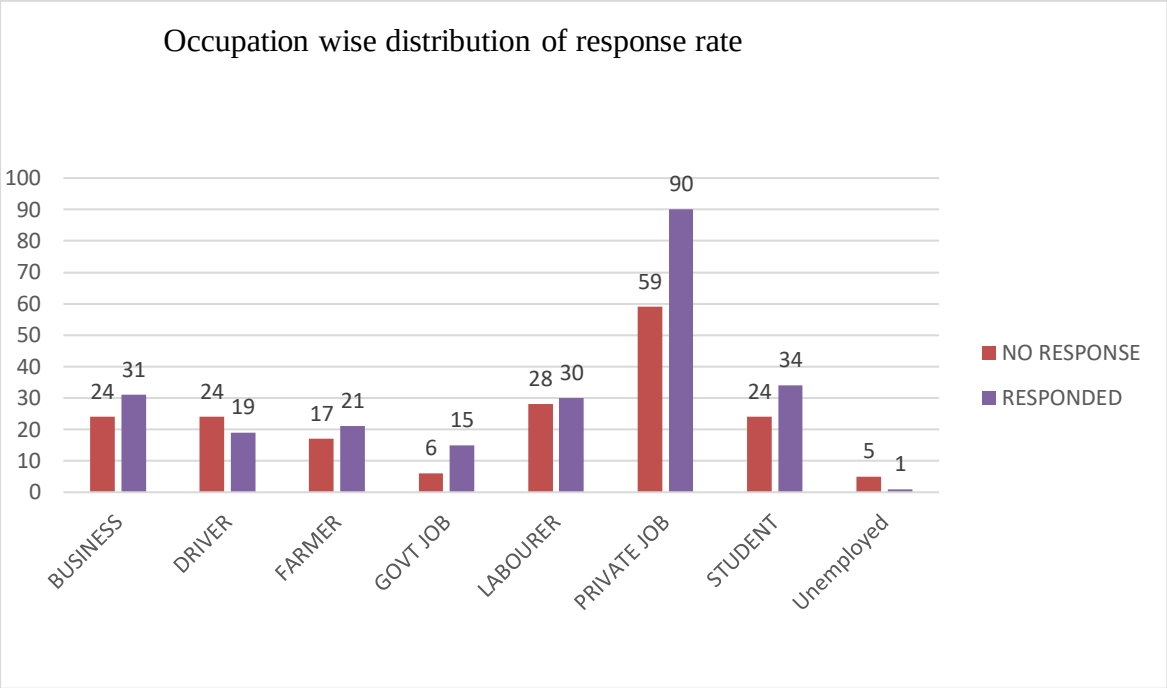


Table 9 showing association between occupation and response*

Occupation	Total number	Response	No Response	P- value
Business	55	31(56.4%)	24(43.6%)	0.1989
Driver	43	19(44.2%)	24 (55.8%)	
Farmer	38	21(55.3%)	17(44.7%)	
Govt job	21	15(71.4%)	6 (28.6%)	
Labourer	58	30(51.7%)	28(48.3%)	
Private job	149	90(60.4%)	59(39.6%)	
Student	58	34(58.6%)	24(41.4%)	
Unemployed	6	1(16.7%)	5(83.3%)	

e) Comparison of reactive donors according to religion:

TTI reactivity among different religion are as follows 389 were following Hindu religion, 31 were Muslims, 7 were Christian and one was following Jainism. 216 reactive donors responded out of 389 Hindu donors while number of responders among Muslims, Christians and Jains were 21, 3 and 1 respectively. Comparison between response rate and religion was found in-significant as p value was more than 0.05 as shown in table 10.

Table 10 showing association between Religion and response

Religion	Total number	Response	No Response	P- value*
CHRISTIAN	7	3(42.9%)	4(57.1%)	0.3953
HINDU	389	216(55.5%)	173(44.5%)	
JAIN	1	1(100%)	0	
MUSLIM	31	21(67.7%)	10(32.3%)	

f) Comparison of response rate according to the donation status of reactive donors:

We also compared the donation status of the TTI reactive donors in our study, we found that response rate among first time donors was 60% while response rate among repeat donors was 54.1%. Out of 428 total reactive donors 268 had donated previously while 160 donated for the first time as depicted in figure 14.

Response rate among first time donors was found almost similar to repeat donors.

P value calculated was 0.23 which shows that there is no association between response rate and donation status of reactive donors. Therefore, not significant as p value is greater than 0.05 as shown in and table 11.

Figure 14 showing response rate among first time and repeat donors

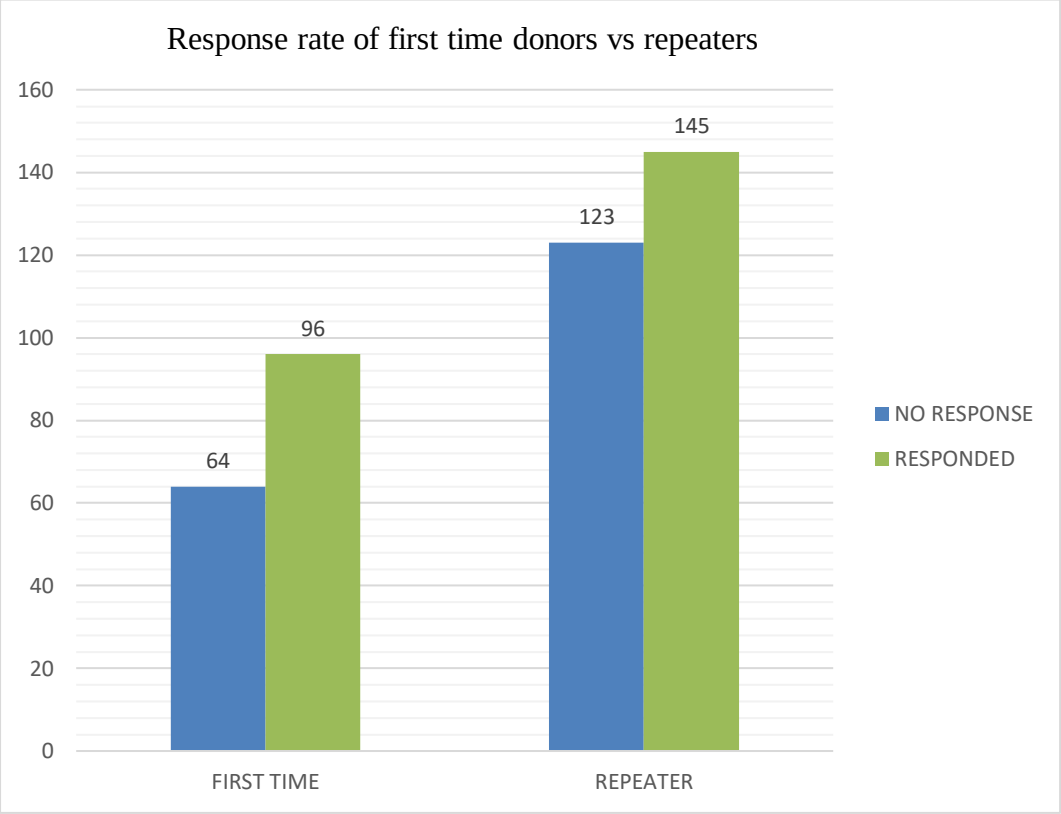


Table 11 showing association between Donation status and response

Donation status	**Total number**	**Response**	**No Response**	**OR (Unadjusted)**	**95% CI**	**P-value**
First time	160	96(60%)	64(40%)	0.785	0.53-1.17	0.23
Repeater	268	145(54.1%)	123(45.9%)			

g) Response rate according to TTI status of the donor:

Response rate to post donation counselling in the present study according to TTI marker reactivity was 156 (57.3%) HBV reactive donors were responded, 20 (48.7%) reactive for HCV were responded, 17 (73.9%) reactive for HIV were responded, 41 (50%) Syphilis reactive donors were responded, 3 (100%) donors reactive for Malaria responded and 4 (57.1%) reactive for Co-infection were responded to post donation counselling as shown in figure 15 and figure 16. Hepatitis B, Hepatitis C and Malaria reactive donors were referred to medicine department, HIV reactive donors referred to ICTC, Syphilis reactive to dermatology department. Therefore, the response rate in the present study is 56.3 %.

Association between TTI status and response rate was analyzed and P value calculated was 0.1873 (greater than 0.05), which is found to be insignificant as shown in table 12.

Figure 15 showing response rate among various TTIs

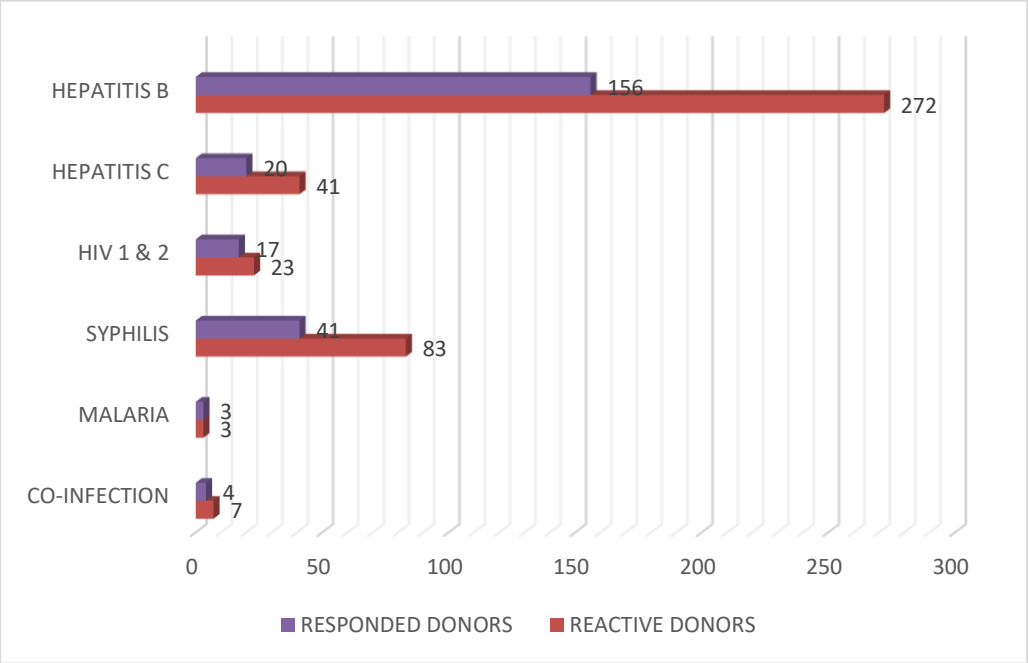
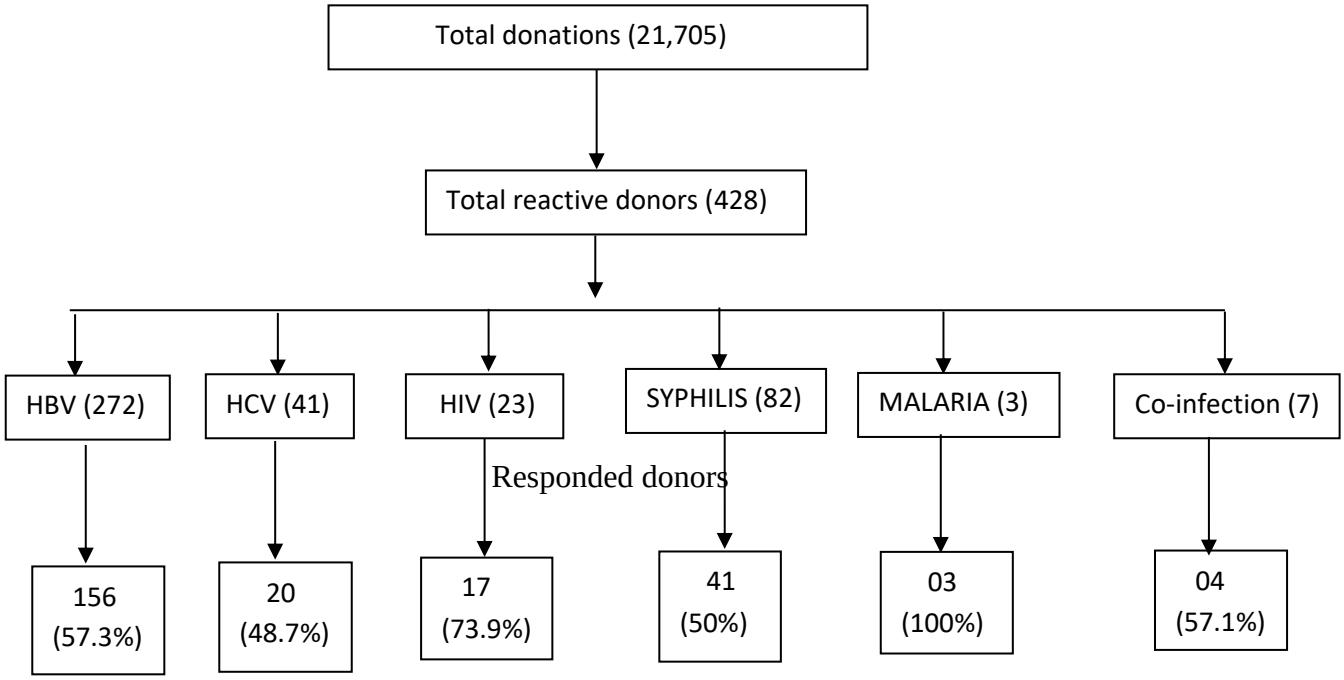


Table 12 showing association between Reactivity status and response

TTI status	Total number	Response	No Response	P-value*
Co-infection	7	4 (57.1%)	3	**0.1873**
HBsAg	272	156 (57.3%)	116	
HCV	41	20 (48.7%)	21	
HIV	23	17 (73.9%)	6	
MALARIA	3	3 (100%)	0	
SYPHILIS	82	41 (50%)	41	

Figure 16 showing Response rate and referral of TTI reactive donors



8. DISCUSSION

The blood must be free of transfusion-transmitted illnesses (TTIs) in order to be donated, which is of utmost importance. To reduce the risk of infection transmission to recipients, blood donation facilities should strictly follow blood donation standards and procedures. Safe blood transfusion requires proper blood donor screening, counseling and TTI screening, along with post-donation counseling and notification of TTI-reactive donors. Both the society and the donor benefited from the notification as the results can be confirmed and the donor can receive appropriate treatment.[56,57] The basic principles of TTI reactive donor notification should involve providing information to the donor promptly, confidentiality, accurately and in manner that it promotes understanding and alleviates anxiety.[63,64]

In the present study response rate of reactive blood donors was moderate 241 (56.3%) which is comparable to the studies done by Agrawal et al (59.8%)[45], Raturi et al (58%)[47] and Bhaskar et al (45.79%)[55]. In the study by Raturi et al moderate response rate was noted and reason attributed was relatively lesser understanding and lesser knowledge among donors about various infections markers and/ or screening tests results.[47] Bhaskar et al study conveyed that 100% response rate can be achieved by educating donor about the various TTI screening tests and proper pre-donation counselling.[55] In contrast low response rate was observed in study by Mukherjee et al (34%)[40], Thaker et al (28.9%)[41], Mishra et al (25.2%)[44], Kumari et al (35.3%)[54], Chaurasia et al (23.3%)[52], Kaur et al (38.9%)[65] and Sachdev et al (21.2%)[43]. Reason explained for low response rate by Kaur et al study attributed to poor health-care knowledge and poor understanding of the screening results.[65] High response rate was noted in Agrawal et al (73.09%)[45] and Patel et al (81.5%)[53]. Kleinman et al reported 42% response rate in the United States.[66] Roshan et al. observed a response rate of 65.4 % from Malaysia.[67]

Every blood transfusion carries a risk of communicable disease; therefore, it is important to check each unit of blood prior to transfusion. The most common TTIs in India are HBV, HCV, HIV, Syphilis and malaria. Chagas disease, HTLV and Cytomegalovirus can be transmitted by blood, but these are not common in India.[36] We excluded donors under the age of 18 years and over 60 years and most donors were men, still our study reflected the burden of disease in the community of Central India. In our study overall TTI reactivity among donors was 1.97%

which is comparable to study by Thaker et al study[41] overall sero-reactivity found was 1.36% and also comparable with other studies from India and developing countries.[68,69]

Distribution of demographics plays a crucial role in the aspect of risk behavior as well as disease outcomes. In our study 97.36% were male donors and 2.6% were female donors. Higher female deferral rate and low participation could be the cause of low female blood donor population.[70] Similar trends were revealed in various studies done by Prerna Mahajan et al (2.3% female)[71], Qureshi et al (2.2% female)[72], Mukherjee S et al (1.87% female)[76], Biswa et al (0.92%female)[73], Ray et al (0.22% female)[74] but not consistent with the study done by Karmakar et al (15% female)[75]and Sachdev et al (9.6% female)[43.] The overall gender specific risk of TTI in the present study was found higher in male population during the study period 421 males (98.36%) and 7 (1.63%) females were sero-reactive as majority of the donors in our study were males which can be the reason of higher TTI reactivity among males than females. This gender specific sero-reactivity is comparable to various studies like Bhasker et al (99.4% male and 0.5% female)[55], Kumari study (96.6% males, 3.4% females)[54], in Raturi et al study (99% male and 1% female)[47] were sero-reactive and Sachdev et al study (97.1% male and 2.9% female)[43].

In the present study, mean age of the sero-reactive donor was 29.71 years and median age was 30 years. Majority of the reactive blood donors were in the age group of 18 to 30 years 54.2% (n=232), 42.5% donors (n=182) were from the age group of 31 to 45 years and 3.27% donors (n=14) were in the age group of 46 to 60 years of age which is comparable to Kumari study where 56.9% reactive donors were in age group of 18 to 30 years followed by 28.4% in 31 to 40 years age group followed by 14.6% reactive donors in 41 to 60 years of age group[54]. In Bhaskar et al study frequency of reactive donors according to age wise distribution were 61% in 18 to 30 years age group, 28.4% in 31 to 40 years age group, 8.7% in 41 to 50 years age group and 2% in age group of 51 to 60 years.[55] Similar findings were found in study done by Shrivastava et al where proportion of the population in the youngest age group, in range of 21 to 30 years showed a higher risk of TTI.[77] Age wise distribution in Kotwal et al study observed 117 sero-reactive donors were below 25 years of age, 227 were between 26 and 35 years of age and 120 donors were above 35 years.[49] Raturi et al study observed similar findings where most of the sero-reactive donors comes in age group less than 35 years of age, 21% in 18-24 years, 43% in 25-34 years range and 36% in age group ≥35 years.[47]

Responders in our study were found higher in the age group of 46 to 60 years of age (64.3%), followed by 31-45 years (58.2%) and 18-30 years age (54.3%) which is comparable to study done by Sonam Kumari where ages of responders and non-responders showed significant differences, 41- 60 years age group showed maximum response (41.2%) while in 18-30 years and 31-40 years of age group showed 36.3% and 30.3% responders respectively[54]. In contrast Mishra et al study observed that 18 to 25 years of age group have maximum responders followed by donors with age group 26-30 years concluding that majority of the donor population to be young.[44]

Total replacement donors in our study were 19,441 (89.5%) and voluntary donors were 2,264 (10.4%) similar to study done by Chaurasia et al (85.4% RD and 14.6% VD)[52]. Predominance of RD was also noted by Singh et al (84.43%)[78], Kakkar et al (94.7%)[79], Pahuja et al (99.48%)[80], Mukherjee S et al (97.3%)[76] and Arora et al (68.6%)[46] but contrast to studies by Pallavi et al where VD constituted 64.78% while RD were 35.22%[51]. TTI reactivity in our study among replacement donors were 90.4% (n=387) while in voluntary donors were only 9.6% (n=41). This higher TTI prevalence among replacement donors as compared to voluntary donors showed the important role play by voluntary donors in blood safety. Comparable findings were observed in study by Divya et al[57] where TTI reactivity was more common in replacement donors as compared to voluntary donors. Sachdev et al study also supports the universal concept of voluntary blood source being safer by the observation of a statistically significant higher percentage of initial reactivity in replacement donors (1.5% reactivity rate) as compared to voluntary donors (0.81% reactivity rate)[43]. Studies by Makroo et al, Chiavetta et al, Singh K et al, Singh B et al also shown high sero-positivity rates of TTIs in the replacement donors.[81-84] In Bhasker et al study none was reactive among VD[55]. This emphasizes the importance of non-remunerated, regular voluntary donations. Surprisingly TTI reactivity rate was higher among voluntary donors (89.7%) in Kumari study, she inferred that people were aware of voluntary blood donation but least bothered about their health status.[54]

In the present study response rate among voluntary donors were higher than replacement donors. 70.7% voluntary donors responded to post donation counseling while 54.7% of replacement donors were responded. Association between response rate and type of donor was found to be statistically significant, (p=0.050). Similar results were observed in study by Sachdev et al where 95.8% voluntary donors were notified and counselled and 4.2% of the RD were responded to post donation counselling, also study by Roshan et al observed higher

response rate and follow-up in VD. Contrast to this, study by Kumari et al noted higher response rate among RD which was 41.6%.[43,54,67]This positive results among voluntary donors suggests that voluntary blood donations are safer as compared to RD and should be encouraged. But voluntary blood donations in our study is very much smaller (10%), therefore our area needed more no. of blood donation campaign and blood donation drive to increase voluntary blood donation.

In our study 55.3% reactive donors came from rural regions while 44.6% were from urban regions. Contrast to this, study done by Shrivastava et al 70% of reactive donors were from urban areas and 30% were from rural areas, Chaurasia et al reactive donors from urban and rural region was 69.2% and 30.8% respectively.[52,77] Geographically majority of the urban region donors were from the Bhopal district and rural region donors were from the villages near to Bhopal. Response rate was similar among reactive donors from urban and rural areas, that is 59.7% sero-reactive donors were responded from urban areas while 53.6% sero-reactive donors were from rural areas. Similar findings were found in study by Sayal N et al, response rate among donors living in urban areas was 52% as compared to those in rural areas 40%.[85] In our study sero-reactivity was higher in donors from rural area and response rate was low but insignificant which may be due to their unwillingness to travel long distance, transport inaccessibility, lack of awareness and their reluctant behavior. Similar results were found in Chaurasia et al study where donors residing in urban areas responded better than those who lived in rural area or far-off places.[52] Similar results were found in study by Basnotra et al where donors residing in far flung inaccessible areas was the main reason for not returning back for counselling and further management.[56] All these showed that distance and inadequate facility could be a reason for the donors from rural areas not reporting back to transfusion facility.

Perception regarding screening test were different among donors which may be attribuited to their different socio-economic and socio-cultural beliefs. Majority of the reactive donors were following Hindu religion which is similar to study done by Shrivastava et al[77] where 73% donors were following Hindu religion. 216 (55.5%) reactive Hindu donors were responded while number of responders among Muslims, Christians and Jains were 21 (67.7%), 3 (42.9%) and 1 (100%) respectively.

We had also compared the occupational level of reactive donors in association with response rate. Reactive donors were categorised into eight different occupation on the basis of data we collected from the hospital records. Most of the sero-reactive donors (n=149) mentioned their occupation as private job, followed by students (n=58) and laborer (n=58), followed by business (n=55), driver (n=43), farmer (n=38), government job (n=21) and unemployed (n=6). Response rate was highest among government job (71.4%) followed by private job (60.4%), followed by students (58%). Lowest response rate was seen among the unemployed donors (16%) indicating that educational level and socio-economic status do affect the response rate. Response rate among the drivers and laborers in our study was moderate, 44.1% and 51.7% respectively which is contrast to the study done by Kumari et al where response rate among drivers was highest (80%) due to the fact that long route drivers were more susceptible to high-risk behavior and high response might be the result of their test seeking attitude. She had observed lowest response rate among laborers (12.5%).[54]

We also compared the donation status of the TTI reactive donors in our study, we found that most of the donors were repeat donors. Total 268 (62.6%) reactive donors had donated previously while 160 (37.3%) had donated for the first time. Similar findings were found in Sachdev et al study where higher TTI reactivity was present in repeat donors (58.44%) as compared to first time donors (41.55%).[43] This is in sharp contrast to what is usually reported in studies like Shrivastava et al (61% were first time donors and 32% were repeat donors)[77], Sayal et al (86.2%), higher positivity in first time donor maybe due to test seeking behavior of donors.[85] However, the Retrovirus Epidemiology Donor Study (REDS) reports that the incidence of TTI is not necessarily lower in whole blood donors who donate regularly and more frequently. The observation of greater TTI reactivity in repeat donors compared to first-time donors is thus supported[66]. This might be as a result of the fact that these donors either did not respond to their previous screening (seroconverted during the most recent collection), or that they were not informed of the reactivity status of their prior collections, or that the rapid screening system for TTI, which is observed in the peripheral blood bank setting, determined that they were non-reactive. Additionally, blood donors are a mobile population in metropolitan areas since they frequently relocate for better career opportunities, which results in a constant change in blood donation sites and phone numbers.

Response rate among first time blood donors was higher in our study than response rate among repeat blood donors but not significant. 60% first time reactive blood donors were responded to the blood center while 54% of repeat donors were reported to the blood center in our study. A similar higher response rate among first time donors (43.6%) than repeat donors (41.6%) also observed in study by Kumari et al.[54] In study by Sayal et al sero-positivity rate was higher in first time donors (86.2%) and all responding donors were first time donors.[85] In contrast Raturi et al and Mukherjee et al study showed that response rate was higher in repeat donors, on further exploration they find out that these donors were aware of TTIs and high-risk behavior and donated blood just for the confirmation of their TTI status.[47,40]

Response rate to post donation counselling in the present study according to TTI marker positivity was 57.3%, 48.7%, 73.9%, 50%, 100% and 57.1% for HBsAg, HCV, HIV, Syphilis, Malaria and Co-infection respectively. Similarly response rate according to TTI marker positivity were found in study done by Kaur et al was HBV(49%), HCV(45.5%), HIV(50%) and Syphilis(17%), Bhasker et al was HBV (28.3%), HCV(15.7%), HIV(72.4%), Syphilis (20%), Kotwal et al was HBV (49.3%), HCV(50%), HIV(49%), Syphilis(50%), study by Raturi et al was HBV (51%), HCV (50%), HIV (77.7%), Syphilis (76.9%) and Malaria (100%), Agrawal et al was HBV (68.4%), HCV (55.2%), HIV(52.9%) and Syphilis (44.8%).[65,55,49,47,45] Though, HBV has highest sero-prevalence rate among donors in our study still response rate of HBV reactive donors was lower than that of HIV reactive and Malaria reactive donors. More interestingly, the donors who were reactive for HIV responded (73.9%) in maximum number after malaria (100%) for post-donation counseling. This may be because of increasing awareness of HIV in our society in recent years. Similar results were observed in Mukherjee et al study where HIV reactive responders were highest (57.4%). Further investigation found that these donors were aware that their blood would be screened for the presence of HIV and would be considered "safe" if the test came out negative.[40] This shows us that we still need to do a lot of work on educating and alerting blood donors about blood safety, and that donor screening requires confidentiality in order to get the right information from the donor.

Seroprevalence of HBV was highest in our study as compared to other TTIs and was consistent with most of the other studies worldwide. Seroprevalence of HBV among blood donors in our study was 1.25% which was almost similar to study done by, Shastry et al (1.23%), Panda et al (1.13%), Bhaumik et al (1.2%) and Karmarkar et al (1.41%).[86,87,88,75] In contrast HBV

seroprevalence was higher in study by Shrivastava et al (1.8%), Arora et al (1.7%), Bhattacharya et al (1.66%), Amrutha Kumari et al (1.77%) and Pahuja et al (2.23%).[77,89,50,90,91] HCV seroprevalence in our study was 0.18% which is similar to study done by Shrivastava et al (0.20%), Leena et al (0.14%), Amrutha et al (0.13%), Kumar et al (1.53%) and Panda et al (1.98%).[77,92,90,93,87] Our study has 0.10% of HIV seroprevalence which was similar to study done by Mukherjee S et al (0.073%), Kumar et al (0.26%), Gupta et al (0.084%) and lower than Leena MS et al (0.27%), Shrivastava et al (0.31%) and Sastry et al (0.28%).[76,86,92-94] Syphilis seroprevalence found in our study was 0.37% which is almost similar to study by Shrivastava et al[77] (0.31%). It was lower than Fernades H et al (2%), Kumar et al (1.74%), Buseri FI et al (1.1%), but higher than Sastry et al (0.008%) and Chandra T et al (0.01%).[95,93,96,86,97] Seroprevalence of Malaria among blood donors at our blood center was 0.01% same as found in Shrivastava et al study (0.01%) and Fernades H et al study (0.01%). It was lower than Mukherjee S et al (0.12%) Leena MS et al (0.129%) and Biswal et al (0.113%).[77,95,76,92,73].

Co-infection

Our study also showed total 7 cases of co-infections (1.63%) among reactive blood donors where two donors were found positive for HIV and Syphilis infections at the same time, two were reactive for Hepatitis B and Syphilis, two were reactive for HIV and Hepatitis B and one was reactive for Hepatitis B and Hepatitis C simultaneously. Numerous factors, including a high degree of epidemiological similarity between their modes of transmission, favour co-infection. An estimated 2-4 million HIV-positive individuals have chronic HBV infection, and 4-5 million also have HCV co-infection.[98] A study by Bhaumik et al[88], also showed co-positivity for HIV and HBsAg in three donors. Khagesan et al[99] showed, co infection in 8 (0.09%) donors, 3 cases of HBsAg and syphilis, and 1 case each of HIV and HBsAg, HBsAg and Syphilis. Kumari et al[54], showed 03 donors, co- infections with HBV and HIV. Mahajan et al[71] also showed an interesting case of HIV and HCV co-infection.

In our study out of total 428 reactive donors 187 (43.6%) reactive donors were called as non-responders from November 2018 to 2023. These reactive non-responders did not report to the blood center even after 3 telephonic calls (at one week of interval) and one postal letter. As this was a retrospective longitudinal study and reactive donor's data were taken from hospital records. Data about reasons for no response taken from records were 18.4% do not attended the call, 17.1% provided wrong contact number, 9.2% donor's phone was switched off, 52.6%

donors attended the call but didn't report to the blood center and 2.6% reactive donors denied to report to the center. Similarly in the study by Kumari et al[54] (64.6%) had not reported to the blood center for counselling. According to Raturi et al., 11.6% of sero-reactive donors were unable to be contacted and advised of adverse test results. This "Could not be contacted" was primarily due to incomplete or false demographic information given by donors.[47] We assume this high percentage of wrong information may be due to unawareness about TTI's and not understanding the importance of giving their correct contact numbers and addresses. There are chances that these reactive donors might had given incorrect contact information and addresses intentionally in order to hide their identitiy, which can be reduced by mandating government-issued I-cards for registration or use of biometrics.

It is clear from the 52.6% sero-reactive donors (who attended the call but didn't report to the blood center) that more work is required to improve the pre-donation counselling criterias. One of the reason these non-responders gave was living at a far place for not reporting to the blood center. Therefore, strategies should be made to counsel such reactive donors who are living at far flung places and find difficulty to travel due to transportation or financial issues. Also make sure that donors' accurate demographic information must acquired before donation. Benefits of donor notification and post-donation counselling extend to the blood bank, the local community, and the blood donor themselves. The overall community also benefits from the counselling process. The eventual reduction in TTI incidence is one evident effect. Reactive blood donors are strongly advised not to donate blood again.

9. CONCLUSION:

A crucial component of the blood bank is the notification of donors and post-donation counselling, which includes providing information on serological status, determining how test findings will affect the donor, and ultimately referring donors for medical attention. Total response rate among TTI reactive donors in our study was 56.3% which may due to decreased awareness and improper pre-donation counselling. Therefore, flaws in providing proper pre-donation counselling to the donors must be correctly handled in order to obtain the 100% response rate.

The maintenance and acquisition of demographic information of reactive blood donors should be more strictly regulated to improve donor notification because they are a crucial document for ensuring the traceability of donors. Due to incomplete demographic data, 43.6% of the reactive blood donors in our study showed no response. This can be successfully decreased by mandating the use of government provided I-cards for donors' registeration or by using biometrics for donor identification.

In particular, our study found that voluntary blood donors are crucial for reducing the spread of transfusion-transmissible infections. In our study, VD had a lower TTI sero-reactivity and a higher response rate than RD; these findings support voluntary donors' commitment to good health, drive for safety, and willingness to provide a more dependable blood supply that can be used in emergencies and for treatments while lowering the risk of infections. Therefore, voluntary blood donations compared to replacement donations should be supported. To guarantee the recipient's blood is safe, it is therefore strongly advised that blood donors should be chosen carefully and that donor blood be thoroughly screened using accepted techniques. According to this pattern, the transfusion service should improve its efforts at all levels to recruit healthy voluntary blood donors and to retain these donors in a safe manner in order to prevent TTI.[1,4]

Recognizing these sero-reactive blood donors and notifying them as early as possible will indirectly help in reducing the prevalence of the transfusion-transmitted infections (TTIs) in the community and will also help in formation of strategies to reduce the economic burden by reducing morbidity and mortality.

10. SUMMARY:

Despite more advanced sophisticated screening methods, there is a very small chance of transmitting infectious diseases through blood donation. Notifying and counselling TTI reactive donors is a crucial and effective strategy for reducing transfusion-transmitted illnesses (TTIs).[4]

The aims and objectives of the present study were to see response of TTI reactive/positive donors towards post donation counseling, to enables the Blood transfusion services to collect demographic and risk exposure information about TTI reactive/positive donors, formulation of guidelines to notify donors about their sero-reactive status and encourage them to get required medical attention as soon as possible. This study was done in Department of Transfusion Medicine and blood bank at AIIMS Bhopal from November 2018 to 2023 after obtaining ethical approval. This is a retrospective longitudinal study where data of reactive donors were analyzed from the hospital records without any intervention.

The donors were selected on the basis of donor selection criteria as per the Drugs & Cosmetics Act. Following blood donation, blood taken in pilot tubes from post donation samples is routinely tested for HIV, Hepatitis B, Hepatitis C virus, malaria, and syphilis as part of the five mandatory Transfusion Transmitted Infection (TTI) screening tests. The blood donors who were reactive to HIV, HBsAg, and HCV by ELISA method, syphilis by RPR method and malaria by rapid card method were notified. Sero-reactive donors were contacted three times, each one a week apart. In the fourth effort, donors were notified through postal letter. Reactive donors who came to the blood center for counselling after receiving any notification were referred to as responders, whereas donors who did not do so even after receiving the fourth notification were known as non-responders.

428 blood donors out of the total number were found to be sero-reactive for one or more TTIs. The donor notification and counselling data for a total of 428 TTI reactive donors were analyzed for response rates. In our study, we noted a moderate response rate (56.3%). Comparison of TTI reactive donors' response rate were done according to the demographic parameters.

Gender: 56.5% reactive males were responded to the post-donation counselling while 42.8% reactive females were responded to the post-donation counselling. There was no significant correlation between gender and response rate ($p= 0.704$).

Type of donor: 70.7% VD responded to post donation counseling while 54.7% RD were responded to post donation counselling. VD response rate was higher than RD and p value calculated was 0.0502. Therefore, correlation between type of donor and response rate was statistically significant.

Age: Reactive donors among 18 to 30 years of age 54.3% were responded, 58.2% were responded among 31 to 45 years of age and 64.3% were responded among age group 46 to 60 years of age. Correlation of between different age groups and response rate of reactive donors were found to be not significant (p=0.629)

Place of residence: Response rate among reactive donors from urban region was 59.7% and from rural region was 53.6% which is almost similar. Statistically no significant correlation was found, (p=1.28)

Occupation: Response rate among various occupation obtained from the donor records was Government job (71.4%), private job (60.4%), student (58.6%), businessman (56.4%), farmer (55.3%), laborer (51.7%), driver (44.2%) and in unemployed (16.7%). Association between response rate and occupation was found to be not significant, p value calculated was 0.1989.

Religion: Response rate was Hindu (55.5%), Muslim (67.7%), Christian (42.9%), Jain (100%). This comparison shows no significant correlation between religion and response rate as the p value was 0.3953.

Donation status: 60% first time reactive donors were responded to post donation counselling while 54.1% repeat reactive donors were responded to post donation counselling. Association of response rate with donation status was found to be not significant, p=0.785.

TTI status: Response rate according to TTI status were HBV (57.3%), HCV (48.7%), HIV (73.9%), Syphilis (50%), Malaria (100%) and Co-infection (57.1%). The association between response rate and TTI status were found to be not significant as p value is 0.1873.

43.6% of reactive donors has not responded to the phone calls and also to the post letter, main reason was due to wrong contact numbers and postal addresses provided by the donors. Other reason could be donor living at far places, lack of awareness and lack of knowledge about TTIs. Since we have observed that correlation of all the demographic parameters with response rate were found insignificant, the comparison between response rate and type of donor (VD/RD) has significant findings. In VD response rate were higher than RD. This trend suggests that for TTI prevention, recruitment of healthy voluntary blood donors and voluntary blood donor retention strategies should be strengthened at all levels in the transfusion service. Therefore,

regular volunteer non-remunerated blood donations are significant to ensure a sufficient supply of safe blood for patients who need transfusions.[1,4]

11. LIMITATIONS:

There were few limitations to our study:
As the study was limited to assessment of donor records, no information was collected from the donors directly about their marital history, high risk history, educational status and annual income of responded reactive donors. This information could have been useful to assess the correlation between TTI reactivity and these parameters.

We could not collect the data after notification and referral whether the donor had reported to the respective department for treatment or not.

Confirmatory tests of sero-reactive donors were not done and we could not differentiate between true positives and false positives.

12. RECOMMENDATIONS:

Proper national guidelines for the reactive blood donor's notification and counselling should be formulated. State health authorities should be informed of non-responders for further contact and tracing.

Reactive donors should be given confirmatory testing which would help in differentiating between true positives and false positives. This will enhance the response to notifications and treatment follow-up compliance.

Demographic records of reactive blood donors are an important document to ensure the traceability of donors and acquisition should be stricter to improve donor notification. Proper maintenance of these records to find correlation between donor's demographics and TTI reactivity would help in future screening of eligible donors.

13. DONOR QUESTIONARRE FORM

All India Institute of Medical Sciences, Bhopal, M.P.
अखिल भारतीय आयुर्विज्ञान संस्थान भोपाल
Phone no. +91-755-2832285, Email: ms@aiimsbhpal.edu.in

DEPARTMENT OF TRANSFUSION MEDICINE (BLOOD CENTRE)

Blood/Blood Component Donor Registration & Selection Questionnaire Consent Form

रक्तदाता प्रश्नोत्तरी एवं सहमती पत्रक

Licence No.: .....
अनुज्ञप्ति पत्र क्रमांक

Blood Unit No.
रक्त इकाई क्र.

S.No. .....
क्रम संख्या

Please answer the following questions correctly. This will help to protect you and the patient who receives your blood.
कृपया निम्नलिखित प्रश्नों का सही उत्तर दीजिए। यह आपको एवं रोगी जिसे आपका रक्त दिया जाएगा कि रक्षण प्रक्रिया में सहायक होगा।

Name of Blood Donor .....
रक्तदाता का नाम

Age ..... Sex ..... Occupation .....
आयु लिंग व्यवसाय

Address .....
पता .....

Replacement / voluntary
Patient's name

_____

Hospital Registration No.

.....Tel.Off. : .....

Resi. ..... Mobile ..... E-mail ID .....Photo ID.....
टेलीफोन आफिस निवास मोबाईल ई-मेल पता

Have you ever donated bood ?
क्या आपने पहले रक्तदान किया है ?
Yes/No
हाँ/नहीं

If yes, How many occasions/times : .....
अगर हां तो कितनी बार

Date of last donation : .....
अंतिम बार कब रक्तदान किया

Did you have any discomfort during/after donation ?
आपको रक्तदान के समय या रक्तदान के पश्चात कोई असुविधा हुई ?
Yes / No
हाँ/नहीं

Blood Group : .....
रक्त समूह

Do you want to be a regular voluntary donor ?
क्या आप ऐच्छिक रक्तदाता बनना चाहते हैं
Yes/No
हाँ/नहीं

If yes, how often would you like to donate blood ?
यदि हाँ तो आप कितनी बार रक्तदान करना चाहते हैं
Once in
3 Monthly/6 Months/Annually
एक बार - तीन माह में/छः माह/वार्षिक

Time of Last meal : .....
अंतिम बार कब भोजन लिया

Are you feel well today ? आज आपको अच्छा लग रहा है ।	Yes/No हाँ/नहीं	Did you sleep well last night ? गत रात्रि आपको अच्छी नींद आयी	Yes/No हाँ/नहीं

Have you any reason to believe that you may be infected ? Yes/No
क्या आपको कोई ऐसा कारण लगता हे जिसके कारण आप संक्रमित हो सकते हैं। हाँ/नहीं

Have you suffered or suffering from any of the following diseases?
क्या आप निम्नलिखित किसी बीमारी से ग्रस्त थे या हैं ?

Tuberculosis क्षयरोग	☐	Jaundice/Hepatitis पीलिया/हेपेटाइटिस	☐
Lung disease फेफडे का रोग	☐	Hepatitis in family/close contact परिवार में या निकट संबंधियों में पीलिया/हेपेटाइटिस	☐
Asthma दमा	☐	Polycythemia-vera पालीसाइथीमिया वेरा	☐
Malaria (3-6 Months) मलेरिया (3-6 माह में)	☐	Skin disease चर्म रोग	☐
Abnormal bleeding tendency असाधारण खून बहना	☐	Sexually transmitted disease यौन संबंधी रोग	☐
Heart disease हृदय रोग	☐	Schizo phrenia मानसिक रोग	☐
Kidney disease गुर्दे का रोग	☐	Typhoid (12 months) मोतीझरा (बारह माह में)	☐
Cancer केन्सर	☐	Allergic disease एलर्जिक रोग	☐
Epilepsy मिर्गी की स्थिति	☐	Leprosy कुष्ठ रोग	☐
Diabetes मधुमेह	☐	Endocrine disorder	☐

History of immunoglobulin treatment (in last 12 months)
इम्यूनोग्लोब्यूलिन चिकित्सा का विवरण (बारह माह में)

History of Unexplained weight loss/Diarrhea/Swollen glands/Continuous low grade fever (in last six months)
गत छः माह में किसी अज्ञात कारणों से वजन का कम होना/दस्त होना/ग्रंथियों का सूजना/निरन्तर बुखार का बने रहना आदि

Are you taking or have taken any of these in the last 72 hrs.?
आपने गत 72 घंटों में ये दवाईयाँ ली हैं या ले रहे हैं ?

Antibiotis एन्टीबायोटिक्स ☐ Aspirin एस्प्रिन ☐ Alcohol मदिग ☐ Steroids स्टीरायॅड्स ☐ Vaccination टीकाकरण ☐ (H/O Dog bite-One year) Rabies vaccination कुत्ता काटना/रेबीज टीकाकरण-एकवर्ष में

Any history of surgery/dental extraction/tattooing/Ear piercing/blood transfusion in past 6 months?
गत छः माह में आपकी कोई शल्यक्रिया/दांत निकालना/गोदना/कनछेदन या रक्ताधान हुआ है।

For female donors :
महिला रक्तदाताओं के लिए

Are you pregnant? Yes/No
क्या आप गर्भवती है ? हाँ/नहीं

Last Menstrual period (LMP)
अंतिम माहवारी की तारीख

Have you had any abortion in last three months ? Yes/No
आपको गत 3 माह में गर्भपात हुआ है ?

Do you have a child less than one year old? Yes/No
आपको एक साल से कम का बच्चा है ? हाँ/नहीं

History of breast feeding Yes/No
क्या आप दुग्धपान कराते है ? हाँ/नहीं

Menstrual problems if any ?
माहवारी से संबंधित कोई समस्या ?

Would you like to be informed about any abnormal test result at the address furnished by you? Yes/No
क्या आप रक्तकोष में रक्त की आवश्यक जांच में पाए गए असामान्य जांच के विवरण हाँ/नहीं
आपके द्वारा दिये गये पते पर सूचित करवाना चाहेंगे

Consent For Donation
रक्तदान की सहमति

I here by give my consent to donate my blood/blood component voluntarily, and understand that -

मैं समझता/समझती हूँ कि -

1. Blood donation is totally voluntary act and no inducement or remuneration has been offered.

   रक्तदान एक स्वेच्छिक कार्य है मुझे इस सेवाकार्य के बदले में पारिश्रमिक या प्रलोभन नहीं दिया गया है।

2. Donation of blood/components is a medical procedure and that by donating voluntarily. I accept the risks associated with this procedure.

   स्वेच्छिक रक्तदान या रक्त के अवयवों का दान एक चिकित्सीय प्रक्रिया है प्रक्रिया से संबंधित संभावित खतरे को स्वीकार करता/करती हूँ।

3. My blood will be tested for Hepatitis B, Hepatitis C, Malarial parasite, HIV/AIDS and veneral diseases in addition to any other screening tests.

   मेरे रक्त की हेपेटाइटिस बी, हेपेटाइटिस सी, मलेरियल पैरासाइट, एच आई वी / एड्स, एवं वेनेरल डिज़ीस एवं कोई और जांच जो रक्त सुरक्षा के लिए आवश्यक हो, की जावेगी।

4. I give permission for the usage of my blood and blood components.

   मैं अपने रक्त या रक्त के अवयवों को उपयोग में लाने की सहमति देता/देती हूँ।

All the information given by me is correct and any concealment or incorrect statement may affect my health or may harm the recipient.

मेरे द्वारा दी गई सभी जानकारी सही है, कोई भी गलत जानकारी मुझे या रक्त मरीज के स्वास्थ्य को प्रभावित कर सकता है।

Date :
दिनांक

Signature of the donor
हस्ताक्षर

General Physical Examination
सामान्य भौतिक परीक्षण

Weight _____ **Kgs.** **Pulse** _____ **BP. mm of Hg.** 1_____
वजन पल्स रक्त संचार गति

Hb _____ **gms/dl** **Temperature** _____ **Phlebotomy site** _____
हीमोग्लोबिन तापमान फ्लेबोटमी

Accepted _____ **Deffered** **Permanent** _____
मान्य (स्वीकृत) अस्वीकृत (अमान्य) स्थायी
Temporary _____
अस्थायी

Name/Signature of donor clinic staff _____

Signature of the Medical Officer
चिकित्सा अधिकारी के हस्ताक्षर

Date _____
दिनांक

Donor reaction if any **Mild/ Moderate /Severe**
रक्तदाता की कोई प्रतिक्रिया

Serological Investigations

ABO ☐ Antibody Screening Positive _____

Blood Group Negative _____

Rh ☐

HBsAg Reactive ..... Non Reactive .....

HIV Reactive ..... Non Reactive .....

VDRL/RPR Reactive ..... Non Reactive .....

HCV Reactive ..... Non Reactive .....

Malaria Parasite Positive ..... Negative .....

Signature of the technologist

14. ETHICAL CONSIDERATIONS:

The present study will be conducted after obtaining ethical approval from the IHEC. The study was conducted according to ethical guidelines for biomedical research on human subjects as given in the 'Declaration of Helsinki' (modified 2000) and as per ICMR guidelines. It would only be started after obtaining IHEC's approval.

The study would not involve human subject and only data of notification and counseling will be used for study purpose.

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16. <u>ETHICAL WAIVER STATEMENT:</u>

The Ethical Waiver is requested for following reasons-

1. As this is data analysis study only, where the participants are de-identified.
2. The research involves less than minimal risk to participants (Data analysis study).
3. Research on data available in the public domain like NACO website & E-Raktkosh.

17. MASTER CHART:

S.No.	DONOR NAME	UNIT NO.	AGE	GENDER	RELIGION	AREA OF RESIDENCE	RURAL /URBAN	OCCUPATION	VD/RD	TTI STATUS	DONATION STATUS	RESPONSE
1	Anil Matthew	487/18	44	M	Christian	CMI Bhawan B.No. 15 padariya bhopal	URBAN	LABOURER	VD	HBs Ag	REPEATER	C&R
2	Ankit Gautam	493/18	24	M	Hindu	Hoshangabad	URBAN	DRIVER	VD	HBs Ag	FIRST TIME	C&R
3	Akash kumar	496/18	20	M	Hindu	South TT nagar bhopal	URBAN	STUDENT	VD	Syphilis	FIRST TIME	C&R
4	Manish Jain	602/18	34	M	Hindu	Jain karrapur, Sagar	URBAN	DRIVER	RD	HBs Ag	REPEATER	C&R
5	Imran qureshi	616/18	24	M	Muslim	Berasia, bhopal	RURAL	LABOURER	RD	HBs Ag	FIRST TIME	C&R
6	Updesh yadav	626/18	30	M	Hindu	Khajurikalan	RURAL	PRIVATE JOB	RD	HBs Ag	REPEATER	C&R
7	Rahul machiwar	658/18	31	M	Hindu	BDA Colony , bhopal	URBAN	PRIVATE JOB	RD	HBs Ag	FIRST TIME	C&R
8	Pradeep kumar panse	687/18	38	M	Hindu	Betul	RURAL	BUSINESS	RD	HBs Ag	REPEATER	C&R
9	Babulal	701/18	39	M	Hindu	Amrai	RURAL	BUSINESS	RD	Syphilis	REPEATER	C&R

10	Nand kishore khangarh	710/18	25	M	Hindu	Mandideep, Raisen	RURAL	GOVT JOB	RD	HCV	FIRST TIME	C&R
11	Kishan sahu	714/18	23	M	Hindu	Annupur	URBAN	BUSINESS	VD	HBs Ag	REPEATER	C&R
12	Daulat singh	04//2019	33	M	HINDU	Habibganj	RURAL	LABOURER	RD	HIV	REPEATER	C&R
13	Dinesh malviya	11//19	32	M	HINDU	Hoshangabad	URBAN	PRIVATE WORK	RD	HBs Ag	REPEATER	C&R
14	Natram	14//19	45	M	HINDU	Vidhisha	URBAN	BUSINESS	RD	SYPHILIS	REPEATER	C&R
15	Sanjeev kumar Mishra	48/19	32	M	HINDU	Santkashir nagar,BHOPAL	URBAN	DRIVER	RD	HBs Ag	REPEATER	C&R
16	Narayan singh patel	73/19	47	M	HINDU	District Damoh	RURAL	PRIVATE WORK	RD	HBV + syphilis	REPEATER	C&R
17	Neeraj kumar	102/19	22	M	HINDU	Baagsewaniya	URBAN	STUDENT	RD	HBs Ag	FIRST TIME	C&R
18	Sanjeev vishwakarma	118/19	29	M	HINDU	Vidhisha	URBAN	GOVT JOB	RD	HBs Ag	REPEATER	C&R
19	Ravi chouney	138/19	19	M	HINDU	Mandideep	URBAN	STUDENT	VD	HBs Ag	FIRST TIME	C&R
20	Tarun kumar kewat	150/19	19	M	HINDU	Ashoka garden, bhopal	URBAN	STUDENT	VD	SYPHILIS	FIRST TIME	C&R

21	Deepak mewada	158/19	18	M	HINDU	Khajuni	RURAL	STUDENT	VD	HBsAg	FIRST TIME	C&R
22	KM Ayushi	172/19	20	F	HINDU	Bairagarh	RURAL	STUDENT	VD	HBsAg	FIRST TIME	C&R
23	Shrinibash patna	212/19	18	M	HINDU	ISER, Bhopal	URBAN	STUDENT	VD	HBsAg	FIRST TIME	C&R
24	Sonu patel	244/19	34	M	HINDU	Baagsewaniya	URBAN	LABOURER	RD	SYPHILIS	REPEATER	C&R
25	Madhun mittal	255/19	23	M	HINDU	Ganj basoda	RURAL	BUSINESS	VD	HIV	FIRST TIME	C&R
26	Santosh dwivedi	296/19	37	M	HINDU	Jahangirabad	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
27	Ravi kumar choubey	318/19	25	M	HINDU	Hoshangabad	RURAL	PRIVATE WORK	VD	HIV	REPEATER	C&R
28	Deepak	393/19	31	M	HINDU	Baagsewaniya	URBAN	LABOURER	RD	SYPHILIS	REPEATER	C&R
29	Sourabh thakur	409/19	24	M	HINDU	Raisen	URBAN	PRIVATE WORK	RD	HBsAg	FIRST TIME	C&R
30	Brijendra singh	428/19	44	M	HINDU	Rohit nagar, bhopal	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
31	Jugal kishore soni	432/19	45	M	HINDU	Ganj basoda	RURAL	FARMER	RD	SYPHILIS	REPEATER	C&R
32	Mukesh	452/19	31	M	HINDU	Hoshangabad	RURAL	LABOURER	RD	HIV+HBV	REPEATER	C&R

33	Uday jeet pal	472/19	34	M	HINDU	Ayodhya bypass road	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
34	Rameshwar	482/19	28	M	HINDU	Raisen	URBAN	LABOURER	RD	SYPHILIS	REPEATER	C&R
35	Abhishek Sen	521/19	20	M	HINDU	Jhansi	URBAN	STUDENT	RD	HCV	FIRST TIME	C&R
36	Brajesh Vaishnav	598/19	38	M	HINDU	Barkhedi	RURAL	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
37	Dharmendra	621/19	30	M	HINDU	Vidhisha	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
38	Akhilesh choudhary	623/19	26	M	HINDU	Chindwada	RURAL	BUSINESS	RD	HBsAg	FIRST TIME	C&R
39	Dheeraj	749/19	26	M	HINDU	Shahpura bhopal	RURAL	LABOURER	RD	HBsAg	FIRST TIME	C&R
40	Sahil Ali	768/19	24	M	MUSLIM	Bagh farhat afzal	RURAL	PRIVATE WORK	RD	SYPHILIS	FIRST TIME	C&R
41	Sushila vaid	921/19	45	F	HINDU	Nehru nagar	URBAN	HOUSE WIFE	VD	HBsAg	FIRST TIME	C&R
42	Nehil dwivedi	965/19	24	M	HINDU	Tulsi nagar	URBAN	STUDENT	VD	HBsAg	REPEATER	C&R
43	Mukesh Rajput	1021/19	42	M	HINDU	Indrapuri BHEL	URBAN	GOVT JOB	RD	HBsAg	REPEATER	C&R

44	Ramzaan	1026/19	32	M	MUSLIM	PC Nagar, bhopal	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
45	Mumtaj Ali	1046/19	42	M	MUSLIM	Bharkhedi	RURAL	PRIVATE WORK	RD	MALARIA	REPEATER	C&R
46	Pappu gowishankar	1089/19	27	M	HINDU	Raisen road BHEL	URBAN	LABOURER	RD	HBsAg	REPEATER	C&R
47	Akhil jonson	1158/19	21	M	CHRISTIAN	Boys hostel AIIMS	URBAN	STUDENT	VD	HBsAg	FIRST TIME	C&R
48	Ashwin sathya	1186/19	23	M	HINDU	PG Hostel AIIMS	URBAN	STUDENT	VD	SYPHILIS	FIRST TIME	C&R
49	Kanhaiah D	1221/19	32	M	HINDU	Hoshangabad	RURAL	PRIVATE WORK	RD	MALARIA	REPEATER	C&R
50	Satendra	1282/19	25	M	HINDU	Vidhisha	URBAN	PRIVATE WORK	RD	HBsAg	FIRST TIME	C&R
51	Manoj somkumar	1336/19	32	M	HINDU	Baagsewaniya	RURAL	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
52	Jivan singh mevada	1403/19	37	M	HINDU	Shahpura bhopal	RURAL	LABOURER	RD	HBsAg	REPEATER	C&R
53	Navneet	1405	37	M	HINDU	Huzur, bhopal	URBAN	BUSINESS	RD	HBsAg	REPEATER	C&R

	Vishwakarma	/19										
54	Arjun	1413/19	22	M	HINDU	Hoshangabad	URBAN	STUDENT	RD	MALARIA	FIRST TIME	C&R
55	Dhirendra singh	1444/19	30	M	HINDU	Bhind	RURAL	PRIVATE WORK	RD	HBs Ag	REPEATER	C&R
56	Dharmendra singh jadon	1445/19	35	M	HINDU	Bhind	RURAL	PRIVATE WORK	RD	HBs Ag	REPEATER	C&R
57	Avinash badkhare	1449/19	26	M	HINDU	Ashoka garden, bhopal	URBAN	LABOURER	RD	HBs Ag	FIRST TIME	C&R
58	Kishan pal singh	1483/19	23	M	HINDU	Lalitpur, UP	RURAL	LABOURER	RD	HBs Ag	FIRST TIME	C&R
59	Irshad khan	1493/19	33	M	MUSLIM	Shahpura bhopal	RURAL	BUSINESS	RD	HBs Ag	REPEATER	C&R
60	Santosh kushwaha	1612/19	29	M	HINDU	Chhola, bhopal	RURAL	DRIVER	RD	HBs Ag	REPEATER	C&R
61	Ajay patil	1649/19	23	M	HINDU	Baagsewaniya	RURAL	PRIVATE WORK	RD	SYPHILIS	FIRST TIME	C&R
62	Isla uddin	1651/19	30	M	MUSLIM	Huzur, bhopal	URBAN	DRIVER	RD	HIV	REPEATER	C&R

63	Hemant Sen	1664/19	21	M	HINDU	Lalghati	URBAN	STUDENT	RD	HIV	FIRST TIME	C&R
64	Jaydev shukla	1666/19	34	M	HINDU	Katni	RURAL	PRIVATE WORK	RD	HBs Ag	REPEATER	C&R
65	Deepak shukla	1667/19	36	M	HINDU	Katni	RURAL	PRIVATE WORK	RD	HBs Ag	REPEATER	C&R
66	Ghanendra kumar	1776/19	29	M	HINDU	ambabai,Jhansi	RURAL	DRIVER	RD	HBs Ag	FIRST TIME	C&R
67	Vipul chaturvedi	1808/19	27	M	HINDU	Ashok nagar pathan, bhopal	URBAN	LABOURER	RD	HIV	REPEATER	C&R
68	Lokesh dhakad	1816/19	22	M	HINDU	Vidhisha	URBAN	LABOURER	RD	HIV	REPEATER	C&R
69	Karan singh pawar	1827/19	38	M	HINDU	Hoshangabad	RURAL	BUSINESS	RD	SYPHILIS	REPEATER	C&R
70	Pankaj patel	1992/19	23	M	HINDU	Khandawa	RURAL	FARMER	RD	SYPHILIS	FIRST TIME	C&R
71	NS Yadav	1996/19	36	M	HINDU	Raj harsha colony	URBAN	LABOURER	RD	HBs Ag	REPEATER	C&R

72	Animesh sharma	2067/19	24	M	HINDU	Kolar road, bhopal	URBAN	FARMER	RD	SYPHILIS	FIRST TIME	C&R
73	Faiz	2120/19	34	M	MUSLIM	Vallabh bharan k pass bhopal	URBAN	PRIVATE WORK	RD	HCV	REPEATER	C&R
74	Mohd Afar	2176/19	43	M	MUSLIM	Sehore	RURAL	BUSINESS	RD	HBsAg	REPEATER	C&R
75	Harish sahu	2208/19	32	M	HINDU	Katara hills	URBAN	DRIVER	RD	HBsAg	REPEATER	C&R
76	Sachin solanki	2216/19	30	M	HINDU	Ambedkar nagar	URBAN	PRIVATE WORK	RD	HIV	REPEATER	C&R
77	Manoj	2249/19	34	M	HINDU	Raisen	RURAL	LABOURER	RD	HBsAg	REPEATER	C&R
78	Pramod kumar	2289/19	44	M	HINDU	Main market	URBAN	DRIVER	VD	HIV	FIRST TIME	C&R
79	Rajiv chandel	2292/19	52	M	HINDU	Arera colony	URBAN	BUSINESS	VD	SYPHILIS	REPEATER	C&R
80	Insaf khan	2469/19	31	M	MUSLIM	Idgah bhopal	RURAL	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
81	Ramkumar	2511	18	M	HINDU	Raisen	RURAL	STUDENT	RD	HBsAg	FIRST TIME	C&R

		/19										
82	Brijendra singh baghel	2519/19	32	M	HINDU	Vidhisha	URBAN	LABOURER	RD	HCV	REPEATER	C&R
83	Manmohan lekhera	2576/19	36	M	HINDU	Bina, Sagar	RURAL	PRIVATE WORK	RD	HIV	REPEATER	C&R
84	Ankit mewada	2582/19	19	M	HINDU	Sehore	RURAL	STUDENT	RD	HBsAg	FIRST TIME	C&R
85	Ankit sharma	2616/19	35	M	HINDU	kati bazar bhopal	RURAL	FARMER	RD	HBsAg	REPEATER	C&R
86	Raja Malviya	2762/19	23	M	HINDU	Laherpur, bhopal	URBAN	FARMER	RD	HBsAg	FIRST TIME	C&R
87	Mithun mairode	2767/19	29	M	HINDU	Piplani	RURAL	LABOURER	RD	SYPHILIS	REPEATER	C&R
88	Nikki raghuwanshi	2783/19	27	M	HINDU	Vidhisha	URBAN	FARMER	RD	HCV	FIRST TIME	C&R
89	Mohan das karode	2814/19	32	M	HINDU	Indus tower bhopal	URBAN	PRIVATE WORK	RD	SYPHILIS	REPEATER	C&R
90	Anniruddha pratap2892/19		22	M	HINDU	ari, Jhansi	RURAL	STUDENT	RD	HBsAg	FIRST TIME	C&R

91	Dharmendra malviya	2900/19	33	M	HINDU	Gulmohar colony bhopal	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
92	Sunil kumar	2958/19	22	M	HINDU	Raisen	RURAL	LABOURER	RD	HIV+HBV	FIRST TIME	C&R
93	Khoob singh choudhary	2996/19	33	M	HINDU	Huzur, bhopal	URBAN	FARMER	RD	HBsAg	REPEATER	C&R
94	Ajay das	3095/19	29	M	HINDU	BHEL, Bhopal	URBAN	GOVT JOB	VD	HCV	REPEATER	C&R
95	Amit chourasiya	3119/19	38	M	HINDU	Hoshangabad	RURAL	FARMER	RD	HCV	REPEATER	C&R
96	Vishnu bardel	3122/19	23	M	HINDU	Barkhedi	RURAL	PRIVATE WORK	RD	HBsAg	FIRST TIME	C&R
97	Devendra sahu	3133/19	42	M	HINDU	Raisen	RURAL	BUSINESS	RD	SYPHILIS	REPEATER	C&R
98	Sumit janyani	30//20	30	M	Hindu	Lalghati	URBAN	BUSINESS	RD	SYPHILIS	REPEATER	C&R
99	Rajesh yadav	171/20	29	M	Hindu	Bhatkhedi Rajgarh	RURAL	PRIVATE WORK	RD	SYPHILIS	REPEATER	NO RESPONSE
100	Vinod devde	259/20	28	M	Hindu	Betul	RURAL	LABOURER	RD	HBsAg	FIRST TIME	NO RES

												PONSE
101	Sumit baghel	283/20	21	M	Hindu	Raisen	RURAL	STUDENT	RD	HBsAg	FIRST TIME	NO RESPONSE
102	Brijesh singh	297/20	32	M	Hindu	Rewa	RURAL	DRIVER	RD	HBsAg	REPEATER	NO RESPONSE
103	Vinit patel	367/20	21	M	Hindu	Narsinghpur	RURAL	FARMER	RD	HBsAg	FIRST TIME	NO RESPONSE
104	Lalit narayan soni	401/20	44	M	Hindu	Sehore	RURAL	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
105	Lorens thomas	425/20	25	M	Christian	Ahmadpur, Huzur	RURAL	PRIVATE WORK	RD	HBsAg	REPEATER	NO RESPONSE
106	Gulab singh adiwasi	446/20	45	M	Hindu	Bina	RURAL	LABOURER	RD	HBsAg	REPEATER	NO RESPONSE
107	Premchand	471/20	36	M	Hindu	Vidhisha	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
108	Sachindra pathak	578/20	24	M	Hindu	Sonagiri	RURAL	LABOURER	RD	HIV	REPEATER	C&R
109	Lavendra singh	628/20	28	M	Hindu	Selma	RURAL	PRIVATE WORK	RD	HIV	REPEATER	C&R
110	Mohit sahu	634/20	27	M	Hindu	Preet nagar, bhopal	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	C&R

111	Rahul bagana	637/20	21	M	Hindu	Saket nagar, bhopal	URBAN	STUDENT	VD	HBsAg	FIRST TIME	C&R
112	Deepak Yadav	675/20	20	M	Hindu	Vidhisha	URBAN	STUDENT	RD	HBsAg	FIRST TIME	NO RESPONSE
113	Yogesh botham	757/20	27	M	Hindu	Barkhedha	RURAL	BUSINESS	RD	HCV	REPEATER	NO RESPONSE
114	Ramkrishna chourasiya	832/20	36	M	Hindu	Karodh, bhopal	RURAL	DRIVER	RD	HBsAg	REPEATER	NO RESPONSE
115	Kamlesh	834/20	41	M	Hindu	Pushpa nagar, bhopal	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	NO RESPONSE
116	Sayyed khan	881/20	27	M	Muslim	Karodh, bhopal	RURAL	FARMER	RD	HBsAg	REPEATER	NO RESPONSE
117	Rohit sen	996/20	29	M	Hindu	Huzur, bhopal	URBAN	BUSINESS	RD	HBsAg	REPEATER	NO RESPONSE
118	Siddhartha rawat	1173/20	21	M	Hindu	Hoshangabad	RURAL	STUDENT	RD	SYPHILIS	FIRST TIME	C&R
119	Shahbaj	1234/20	28	M	Muslim	Huzur, bhopal	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	NO RESPONSE
120	Bhupendra sarathe	1262	30	M	Hindu	Pipariya, hoshangabad	RURAL	FARMER	RD	HBsAg	REPEATER	NO RES

		/20										PONSE
121	Rohan dayal	1282/20	19	M	Hindu	Habibganj	RURAL	STUDENT	RD	HCV	FIRST TIME	NO RESPONSE
122	Pramod	1295/20	31	M	Hindu	Huzur, bhopal	URBAN	PRIVATE WORK	RD	SYPHILIS	REPEATER	NO RESPONSE
123	Satish pawar	1310/20	24	M	Hindu	Harda	RURAL	LABOURER	RD	HBsAg	REPEATER	NO RESPONSE
124	Dinesh patel	1319/20	28	M	Hindu	Panna	RURAL	LABOURER	RD	HBsAg	REPEATER	NO RESPONSE
125	Anil kumar gaud	1357/20	24	M	Hindu	Ambedkar nagar	RURAL	PRIVATE WORK	RD	HBsAg	FIRST TIME	C&R
126	Sonu chouhan	1368/20	33	M	Hindu	Kolar	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	NO RESPONSE
127	S Raghu	1474/20	20	M	Hindu	Baagsewaniya	RURAL	STUDENT	RD	HCV	FIRST TIME	NO RESPONSE
128	Ishwar meena	1483/20	32	M	Hindu	Sehore	RURAL	DRIVER	RD	HIV	REPEATER	NO RESPONSE
129	Nausad khan	1620/20	31	M	Muslim	Dewas	RURAL	LABOURER	RD	HBsAg	REPEATER	NO RESPONSE

130	Rajendra rajput	1628/20	31	M	Hindu	Raisen	RURAL	FARMER	RD	HBsAg	FIRST TIME	C&R
131	Dheeraj pal	1657/20	30	M	Hindu	BHEL	URBAN	PRIVATE WORK	RD	HCV	REPEATER	NO RESPONSE
132	Shaijuddin	1738/20	26	M	Muslim	Kolar road	URBAN	BUSINESS	RD	HBsAg	REPEATER	NO RESPONSE
133	Anil chadar	1808/20	32	M	Hindu	BHEL	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	NO RESPONSE
134	Bhagwan singh	1836/20	34	M	Hindu	Huzur, bhopal	URBAN	PRIVATE WORK	RD	HBsAg	REPEATER	C&R
135	Rajkumar chedar	1854/20	29	M	Hindu	Sagar	URBAN	FARMER	RD	HBsAg	REPEATER	NO RESPONSE
136	Jasavant singh	1887/20	42	M	Hindu	Samnapur	RURAL	DRIVER	RD	SYPHILIS	REPEATER	NO RESPONSE
137	Rohit giri	1916/20	22	M	Hindu	Baagmughaliya	RURAL	STUDENT	RD	SYPHILIS	FIRST TIME	NO RESPONSE
138	Bunty yadav	2016/20	32	M	Hindu	Prajapati nagar	RURAL	LABOURER	RD	SYPHILIS	REPEATER	NO RESPONSE

139	Amar singh yadav	2017/20	35	M	Hindu	Prajapati nagar	RURAL	PRIVATE WORK	RD	SYPHILIS	REPEATER	NO RESPONSE
140	Rishab rajesh	2082/20	31	M	Hindu	Kosnal nagar	RURAL	BUSINESS	RD	SYPHILIS	REPEATER	NO RESPONSE
141	Sonu bhuriya	2128/20	35	M	Hindu	Raisen	RURAL	BUSINESS	RD	HBsAg	REPEATER	NO RESPONSE
142	Ankit chaturvedi	2159/20	27	M	Hindu	Vasuda	RURAL	PRIVATE WORK	RD	HBsAg	REPEATER	NO RESPONSE
143	Ankit banjara	2173/20	25	M	Hindu	Navjeevan colony	URBAN	PRIVATE WORK	RD	HBsAg	FIRST TIME	NO RESPONSE
144	Vinod rajput	2177/20	27	M	Hindu	Vidhisha	URBAN	BUSINESS	RD	HBsAg	REPEATER	NO RESPONSE
145	Indrapal singh gurjar	2199/20	31	M	Hindu	Indrapuri	URBAN	PRIVATE WORK	RD	HBsAg	FIRST TIME	NO RESPONSE
146	Mritunjay singh	2223/20	24	M	Hindu	Nehru nagar	URBAN	PRIVATE WORK	RD	HBsAg	FIRST TIME	NO RESPONSE
147	Shafeek	2302/20	36	M	Hindu	Raisen	RURAL	FARMER	RD	HBsAg	REPEATER	NO RESPONSE

148	RAHUL SINGH	01 // 21	25	M	HIN DU	HUZUR	URBA N	PRIVAT E WORK	R D	Hbs Ag	FIRST TIME	NO RES PON SE
149	RAJESH PAL	29 // 21	26	M	HIN DU	BERASIYA	RURAL	PRIVAT E WORK	R D	Hbs Ag	FIRST TIME	NO RES PON SE
150	MANIS H SINGH CHOUH AN	15 0/ 21	25	M	HIN DU	ANAND NAGAR	RURAL	BUSIN ESS	R D	Hbs Ag	FIRST TIME	NO RES PON SE
151	ABHISH EK	17 0/ 21	27	M	HIN DU	BARKHEDA PATHANI	RURAL	PRIVAT E WORK	R D	SYP HILI S	REPE ATER	C&R
152	RAM DAYAL AHIRW AR	20 5/ 21	42	M	HIN DU	NARIYALKH EDA	RURAL	PRIVAT E WORK	R D	Hbs Ag	REPE ATER	NO RES PON SE
153	RAVI SHANK AR	21 1/ 21	27	M	HIN DU	HUZUR	URBA N	FARME R	R D	Hbs Ag	REPE ATER	NO RES PON SE
154	ROOPSI NGH	22 9/ 21	47	M	HIN DU	NEHRUNA GAR	URBA N	GOVT JOB	R D	Hbs Ag	REPE ATER	C&R
155	VIJAY KUMAR YADAV	32 3/ 21	26	M	HIN DU	AMRAI PARISAR	RURAL	GOVT JOB	R D	SYP HILI S	REPE ATER	NO RES PON SE
156	SURESH KARMA	39 5/ 21	31	M	HIN DU	SEHORE	RURAL	PRIVAT E WORK	R D	Hbs Ag	REPE ATER	NO RES PON SE
157	MADHA V YADAV	42 0/ 21	38	M	HIN DU	ABDULLAG ANJ	RURAL	FARME R	R D	Hbs Ag	REPE ATER	C&R

158	ARJUN SINGH THAKUR	450/21	27	M	HINDU	KHAJURIKALAN	RURAL	BUSINESS	VD	Hbs Ag	REPEATER	C&R
159	MUKESH RAGHUWANSHI	456/21	41	M	HINDU	HUZUR	URBAN	FARMER	RD	Hbs Ag	REPEATER	C&R
160	POOJA	485/21	30	F	HINDU	RAISEN	URBAN	HOUSE WIFE	RD	SYP HILIS	REPEATER	NO RESPONSE
161	VIVEK BOBUDE	500/21	29	M	HINDU	KATARA HILLS	URBAN	LABOURER	VD	SYP HILIS	REPEATER	NO RESPONSE
162	MANNU SINGH	509/21	28	M	HINDU	BHOPAL	URBAN	BUSINESS	RD	SYP HILIS	REPEATER	NO RESPONSE
163	VINOD KUMAR WAGDINE	566/21	45	M	HINDU	HUZUR	URBAN	PRIVATE WORK	RD	Hbs Ag	REPEATER	NO RESPONSE
164	BRIJESH VAISHNAV	602/21	40	M	HINDU	BARKHEDI	RURAL	GOVT JOB	RD	Hbs Ag	REPEATER	NO RESPONSE
165	RAHUL NETKAR	624/21	28	M	HINDU	NARSINGHGARH	RURAL	LABOURER	RD	SYP HILIS	REPEATER	NO RESPONSE
166	PRAVEEN DHAMANIYA	735/21	29	M	HINDU	TT NAGAR	URBAN	LABOURER	RD	Hbs Ag	REPEATER	NO RESPONSE

167	CHANDRABHAN SAHU	745/21	32	M	HINDU	RAILWAY STATION	URBAN	LABOURER	RD	SYPHILIS	REPEATER	NO RESPONSE
168	MANOHAR SINGH	804/21	46	M	HINDU	RAISEN	RURAL	PRIVATE WORK	VD	SYPHILIS	REPEATER	NO RESPONSE
169	RAJKUMAR AHIRWAR	850/21	30	M	HINDU	VIDHISHA	URBAN	DRIVER	RD	Hbs Ag	FIRST TIME	C&R
170	MONU RAJAK	887/21	21	M	HINDU	BARKHEDA PATHANI	RURAL	STUDENT	RD	SYPHILIS	FIRST TIME	NO RESPONSE
171	JITENDRA YADAV	897/21	24	M	HINDU	TIKAMGARH	RURAL	PRIVATE WORK	RD	Hbs Ag	FIRST TIME	C&R
172	DHARMESH PATEL	949/21	30	M	HINDU	JABALPUR	URBAN	DRIVER	RD	Hbs Ag	REPEATER	NO RESPONSE
173	PRAMOD KR CHOURASIYA	961/21	31	M	HINDU	RAISEN	URBAN	LABOURER	RD	SYPHILIS	REPEATER	NO RESPONSE
174	SHUBHAM MANDAL	1053/21	27	M	HINDU	PANCHSHEEL NAGAR	RURAL	FARMER	RD	Hbs Ag	REPEATER	NO RESPONSE
175	AYYAN THAKKAR	1076/21	23	M	HINDU	HOSHANGABAD	RURAL	BUSINESS	RD	Hbs Ag	FIRST TIME	NO RESPONSE
176	SURENDRA	1149	30	M	HINDU	BAAGSEWANIYA	RURAL	DRIVER	RD	SYPHILIS	REPEATER	NO RES

	MALAKAR	/21										PONSE
177	ABHILASH RAMLAKE	1182/21	24	M	HINDU	NEW DELHI	URBAN	LABOURER	RD	Hbs Ag	FIRST TIME	NO RESPONSE
178	SANJAY MEENA	1351/21	28	M	HINDU	ETAKHEDI	RURAL	PRIVATE WORK	RD	HCV	REPEATER	NO RESPONSE
179	SANSKAR ISRANI	1541/21	19	M	HINDU	MISROD	RURAL	PRIVATE WORK	RD	HCV	FIRST TIME	NO RESPONSE
180	RAMAVTAR BEN	1560/21	32	M	HINDU	PIPLANI	RURAL	LABOURER	RD	HCV	REPEATER	NO RESPONSE
181	MRITYUNJAY KAVISHEKHA	1622/21	39	M	HINDU	HARDA	RURAL	PRIVATE WORK	RD	SYPHILIS	REPEATER	NO RESPONSE
182	INDRESH PAWAR	1814/21	36	M	HINDU	ASHOKA GARDEN	URBAN	PRIVATE WORK	RD	Hbs Ag	REPEATER	NO RESPONSE
183	NITESH GUPTA	2036/21	24	M	HINDU	OBEDULLAGANJ	URBAN	BUSINESS	RD	SYPHILIS	FIRST TIME	NO RESPONSE
184	RAHUL LALWANI	2042/21	33	M	HINDU	NEW MARKET	URBAN	PRIVATE WORK	RD	SYPHILIS	REPEATER	NO RESPONSE
185	PUSHPENDRA YADAV	2191/21	30	M	HINDU	TIKAMGARH	RURAL	BUSINESS	RD	Hbs Ag	REPEATER	NO RESPONSE

186	BHARATLAL KUSHWAHA	2209/21	29	M	HINDU	LALITPUR	RURAL	DRIVER	RD	SYPHILIS	REPEATER	NORESPONSE
187	ANSHUL SHARMA	2234/21	21	M	HINDU	NAVEEN NAGAR	URBAN	STUDENT	RD	SYPHILIS	FIRST TIME	NORESPONSE
188	AKHILESH NAYAK	2249/21	26	M	HINDU	SAKET NAGAR	URBAN	STUDENT	RD	SYPHILIS	REPEATER	NORESPONSE
189	LORENS THOMAS	2289/21	26	M	CHRISTIAN	BAAGSEWANIYA	RURAL	PRIVATE WORK	RD	Hbs Ag	REPEATER	NORESPONSE
190	ARPIT DHARIWAL	2319/21	32	M	HINDU	MANDI	RURAL	GOVT JOB	RD	Hbs Ag	REPEATER	NORESPONSE
191	SONU VERMA	2341/21	26	M	HINDU	NARIYALKHEDA	RURAL	DRIVER	RD	Hbs Ag	REPEATER	NORESPONSE
192	KAPIL SONI	2345/21	26	M	HINDU	SHAHJAPUR	RURAL	DRIVER	RD	Hbs Ag	REPEATER	NORESPONSE
193	MANOJ SHARMA	2349/21	25	M	HINDU	SHAHJAPUR	RURAL	PRIVATE WORK	RD	Hbs Ag	REPEATER	NORESPONSE
194	ROHIT TARUN	2365/21	38	M	HINDU	MALVIYA NAGAR	URBAN	FARMER	RD	SYPHILIS	REPEATER	NORESPONSE
195	RAJ KUMAR	2429	22	M	HINDU	MAMTA NAGAR	URBAN	LABOURER	RD	Hbs Ag	FIRST TIME	NORES

		/21										PONSE
196	BRAJESH KUMAR	2438/21	25	M	HINDU	RAISEN	URBAN	DRIVER	RD	Hbs Ag	FIRST TIME	NO RESPONSE
197	DASHRATH PURN	2439/21	23	M	HINDU	RAISEN	RURAL	PRIVATE WORK	RD	Hbs Ag	FIRST TIME	NO RESPONSE
198	AKSHAY PATIL	2479/21	25	M	HINDU	BAAGMUGALIYA	RURAL	STUDENT	RD	Hbs Ag	FIRST TIME	NO RESPONSE
199	SANTOSH RAJAK	2593/21	23	M	HINDU	MISROD	RURAL	STUDENT	RD	Hbs Ag	FIRST TIME	NO RESPONSE
200	SHIVAM BHARGAV	2619/21	25	M	HINDU	KOLAR ROAD	RURAL	PRIVATE WORK	RD	Hbs Ag	REPEATER	NO RESPONSE
201	BHISHAM KR SANODHIYA	2653/21	39	M	HINDU	BERASIYA	RURAL	BUSINESS	RD	HCV	REPEATER	NO RESPONSE
202	SOMNATH	2699/21	38	M	HINDU	MISROD	RURAL	DRIVER	RD	SYPHILIS	REPEATER	NO RESPONSE
203	VIKRAM SANODHIYA	2827/21	35	M	HINDU	MANSOR	RURAL	LABOURER	RD	Hbs Ag	REPEATER	NO RESPONSE
204	HEMANT AHIRWAR	2865/21	25	M	HINDU	NARIYALKHEDA	RURAL	DRIVER	RD	Hbs Ag	REPEATER	NO RESPONSE

205	HARIDESH GOSH	2926/21	24	M	HINDU	SAGAR	URBAN	FARMER	RD	Hbs Ag	FIRST TIME	NO RESPONSE
206	SONU CHANDRA	3021/21	28	M	HINDU	BARKHEDA PATHANI	RURAL	PRIVATE WORK	RD	Hbs Ag	REPEATER	NO RESPONSE
207	JITENDRA KARIKANT	3058/21	31	M	HINDU	TT NAGAR	URBAN	PRIVATE WORK	RD	Hbs Ag	REPEATER	NO RESPONSE
208	MRIDALA	3177/21	50	F	HINDU	SAKET NAGAR	URBAN	PRIVATE WORK	RD	SYP HILIS	REPEATER	NO RESPONSE
209	MUKESH PAL	3250/21	36	M	HINDU	KATARA HILLS	URBAN	LABOURER	RD	Hbs Ag	REPEATER	NO RESPONSE
210	HARIOM MEENA	3276/21	30	M	HINDU	SAKET NAGAR	URBAN	PRIVATE WORK	RD	Hbs Ag	FIRST TIME	NO RESPONSE
211	SUNIL SEN	3296/21	30	M	HINDU	CHINCHLI	RURAL	BUSINESS	VD	Hbs Ag	FIRST TIME	C&R
212	RAGHAV PATEL	3306/21	19	M	HINDU	GOVINDPURA	URBAN	PRIVATE WORK	RD	Hbs Ag	FIRST TIME	NO RESPONSE
213	DANISH KHAN	3327/21	33	M	MUSLIM	HUZUR	URBAN	PRIVATE WORK	RD	SYP HILIS	REPEATER	NO RESPONSE

214	MOHSIN ALI	3383/21	30	M	MUSLIM	SEHORE	RURAL	PRIVATE WORK	RD	SYPHILIS	REPEATER	NO RESPONSE
215	SACHIN PATEL	3403/21	22	M	HINDU	LAHERPUR	RURAL	STUDENT	RD	Hbs Ag	FIRST TIME	NO RESPONSE
216	AJAY JHANJHOT	3442/21	28	M	HINDU	MANIT	URBAN	STUDENT	RD	SYPHILIS	FIRST TIME	NO RESPONSE
217	RANJEET	3473/21	39	M	HINDU	PIPLANI	RURAL	PRIVATE WORK	RD	HCV	REPEATER	NO RESPONSE
218	MANSINGH	3470/21	41	M	HINDU	PANCHSHEEL NAGAR	RURAL	PRIVATE WORK	RD	Hbs Ag	REPEATER	NO RESPONSE
219	GAGAN CHANDRAN	3489/21	40	M	HINDU	DEWAS	RURAL	BUSINESS	RD	SYPHILIS	REPEATER	NO RESPONSE
220	GANESH SHARMA	3570/21	41	M	HINDU	BAAGMUGALIYA	RURAL	PRIVATE WORK	RD	SYPHILIS	REPEATER	NO RESPONSE
221	NARENDRA DANGI	3578/21	30	M	HINDU	VIDHISHA	URBAN	PRIVATE WORK	RD	Hbs Ag	FIRST TIME	NO RESPONSE
222	SANTOSH GOUR	3581/21	36	M	HINDU	JATTKHEDA	RURAL	LABOURER	RD	SYPHILIS	REPEATER	NO RESPONSE

223	UMASH ANKAR SHARM A	36 00 /2 1	45	M	HIN DU	BAAGSEW ANIYA	RURAL	DRIVE R	R D	SYP HILI S	REPE ATER	NO RES PON SE
224	DHEERA J PAL	37 22 /2 1	31	M	HIN DU	INDRAPURI	URBA N	FARME R	R D	HCV	REPE ATER	NO RES PON SE
225	SHUBH AM MANDA L	37 54 /2 1	25	M	HIN DU	PANCHSHE EL NAGAR	URBA N	FARME R	R D	Hbs Ag	FIRST TIME	NO RES PON SE
226	RAKESH GAUVR E	38 11 /2 1	46	M	HIN DU	SHIVNAGA R	URBA N	LABOU RER	R D	Hbs Ag	REPE ATER	NO RES PON SE
227	ROHAN SINGH	38 86 /2 1	32	M	HIN DU	KHAJURIKA LAN	RURAL	PRIVAT E WORK	R D	HCV	REPE ATER	NO RES PON SE
228	AKSHAY PATIL	12 // 22	26	M	HIN DU	BAAGMUG ALIYA	URBA N	PRIVAT E JOB	R D	HBs Ag	REPE ATER	C&R
229	RAJA MALVIY A	20 /2 2	27	M	HIN DU	BAAGMUG ALIYA	URBA N	GOVT JOB	R D	HBs Ag	REPE ATER	C&R
230	RAHUL AHIRW AR	22 /2 2	26	M	HIN DU	PIPALIYA HOSHANG ABAD	RURAL	PRIVAT E JOB	R D	SYP HILI S	REPE ATER	C&R
231	ABHISH EK RAJPUT	17 8/ 22	21	M	HIN DU	ITARSI	RURAL	STUDE NT	R D	HBs Ag	FIRST TIME	C&R
232	VIJAY NARWA RE	20 9/ 22	37	M	HIN DU	GOVINDPU RA	URBA N	PRIVAT E JOB	R D	HBs Ag	REPE ATER	NO RES PON SE

233	JAI KISHAN	255/22	30	M	HINDU	HUZUR	URBAN	LABOURER	RD	SYPHILIS	REPEATER	NO RESPONSE
234	AMIR	288/22	28	M	MUSLIM	HUZUR	URBAN	LABOURER	RD	HBsAg	REPEATER	C&R
235	ARVIND SINGH RAJPUT	322/22	26	M	HINDU	KANISHK NAGAR	URBAN	PRIVATE JOB	RD	HBsAg	REPEATER	NO RESPONSE
236	HRITHIK	345/22	19	M	HINDU	BAAGSEWANIYA	RURAL	STUDENT	VD	HBsAg	FIRST TIME	NO RESPONSE
237	AATMA RAM PATEL	363/22	31	M	HINDU	RAISEN ROAD	URBAN	LABOURER	RD	HBsAg	REPEATER	NO RESPONSE
238	SITA RAM RAI	368/22	32	M	HINDU	BARKHEDI	RURAL	BUSINESS	RD	SYPHILIS	FIRST TIME	C&RP
239	RAKESH PATIDAR	506/22	31	M	HINDU	KOLAR ROAD	RURAL	GOVT JOB	RD	HBsAg	FIRST TIME	NO RESPONSE
240	MUKESH AHIRWAR	541/22	36	M	HINDU	SAHAJAPUR	RURAL	BUSINESS	RD	HBsAg	REPEATER	NO RESPONSE
241	KARTHIK PRAJAPATI	939/22	26	M	HINDU	BAAWARIYA KALAN	RURAL	PRIVATE JOB	RD	SYPHILIS	FIRST TIME	C&R
242	MAHENDRA MARANE	958/22	28	M	HINDU	HOSHANGABAD	RURAL	LABOURER	RD	HBsAg	REPEATER	NO RESPONSE

243	GHANSHYAM	972/22	52	M	HINDU	BARKHEDI	RURAL	DRIVER	RD	HBsAg	REPEATER	NO RESPONSE
244	GAURAV YADUWANSHI	987/22	22	M	HINDU	SAHAPURA	RURAL	FARMER	RD	HBsAg	FIRST TIME	NO RESPONSE
245	RAVINDRA TIWARI	1075/22	40	M	HINDU	UMRAI	RURAL	PRIVATE JOB	RD	HBsAg	REPEATER	NO RESPONSE
246	VINAY MARMAR	1076/22	51	M	HINDU	KOLAR ROAD	URBAN	BUSINESS	RD	SYPHILIS	REPEATER	C&R
247	JAYANT SHARMA	1115/22	30	M	HINDU	MISROD	RURAL	PRIVATE JOB	RD	HBsAg	FIRST TIME	C&R
248	RAJENDRA DHRUVE	SDP	21	M	HINDU	ARERA COLONY	URBAN	STUDENT	VD	HBsAg	FIRST TIME	NO RESPONSE
249	PAWAN KUMAR SINGH	1226/22	30	M	HINDU	INDRAPURI	URBAN	BUSINESS	RD	HBsAg	REPEATER	C&R
250	ARVIND YADAV	1250/22	45	M	HINDU	HUZUR	URBAN	GOVT JOB	RD	HBsAg	REPEATER	C&R
251	KALYAN SHARMA	1294/22	28	M	HINDU	BHOPAL	URBAN	LABOURER	RD	HBsAg	FIRST TIME	C&RP

252	PRASHANT BHATT	1377/22	24	M	HINDU	AYODHYA BYPASS	RURAL	BUSINESS	RD	SYPHILIS	REPEATER	C&R
253	SHADAB ALI	1467/22	31	M	MUSLIM	PIPALIYA PENDEKHAN	RURAL	PRIVATE JOB	RD	HBsAg	FIRST TIME	C&R
254	RAGHUVEER SARKAR	1509/22	28	M	HINDU	DIKSHANAGAR	RURAL	GOVT JOB	RD	HBsAg	REPEATER	C&R
255	BHUPESHWAR SHARMA	1580/22	32	M	HINDU	BHEL	URBAN	BUSINESS	RD	HCV	REPEATER	NO RESPONSE
256	LORENS THANS	1584/22	35	M	CHRISTIAN	HUZUR	URBAN	BUSINESS	RD	HBsAg	REPEATER	NO RESPONSE
257	RAISH KHAN	1601/22	32	M	MUSLIM	RAJGARLE	RURAL	PRIVATE JOB	RD	HBsAg	FIRST TIME	C&R
258	VIJAY SHANKAR TIWARI	1612/22	37	M	HINDU	RATANPUR	RURAL	PRIVATE JOB	RD	SYPHILIS	REPEATER	C&R
259	VIJAY PAL	1844/22	31	M	HINDU	REWA	RURAL	DRIVER	RD	SYPHILIS	FIRST TIME	NO RESPONSE
260	JAYESH SHRIVASTAVA	1901/22	26	M	HINDU	PIPLANI	RURAL	STUDENT	RD	SYPHILIS	REPEATER	C&R

261	VIPIN RATHOD	1995/22	37	M	HINDU	SAHAPURA	RURAL	PRIVATE JOB	RD	SYP HILIS	REPEATER	C&R
262	VIJAY KUMAR YADAV	2045/22	28	M	HINDU	BAAGSEWANIYA	RURAL	BUSINESS	RD	SYP HILIS	REPEATER	C&R
263	PAWAN HARODE	2132/22	31	M	HINDU	BETUL	RURAL	LABOURER	RD	HBs Ag	FIRST TIME	NO RESPONSE
264	SUMIT	2214/22	27	M	HINDU	RAMNAGAR	URBAN	PRIVATE JOB	RD	HBs Ag	REPEATER	C&R
265	JITENDRA MISHRA	2260/22	37	M	HINDU	REWA	RURAL	FARMER	RD	SYP HILIS	FIRST TIME	NO RESPONSE
266	MANOJ RAI	2264/22	33	M	HINDU	INDORE	URBAN	DRIVER	RD	HIV	REPEATER	C&R
267	ARPIT MISHRA	2272/22	23	M	HINDU	CHANAKPURI	URBAN	PRIVATE JOB	RD	HBs Ag	REPEATER	C&R
268	BRAJESH KUMAR CHANDEL	2296/22	33	M	HINDU	RAISEN ROAD	URBAN	PRIVATE JOB	RD	HBs Ag	REPEATER	NO RESPONSE
269	SOMESH KOLEKAR	2386/22	23	M	HINDU	GWALIOR	URBAN	STUDENT	RD	HBs Ag	FIRST TIME	C&R

270	RAJEEV VALMIK	2416/22	21	M	HINDU	KOLAR ROAD	RURAL	STUDENT	RD	HBsAg	FIRST TIME	NO RESPONSE
271	AJAY SINGH	2445/22	25	M	HINDU	HAMIDIYA	URBAN	GOVT JOB	VD	HBsAg	FIRST TIME	C&R
272	BASANT KAHAR	2516/22	33	M	HINDU	PIPARIYA	RURAL	PRIVATE JOB	RD	HIV	REPEATER	NO RESPONSE
273	PANKAJ VISHWA KARMA	2755/22	21	M	HINDU	MANDIDEEP	RURAL	STUDENT	RD	SYPHILIS	FIRST TIME	C&R
274	SHAHRUKH KHAN	2825/22	23	M	MUSLIM	RAISEN	RURAL	PRIVATE JOB	RD	HBsAg	REPEATER	NO RESPONSE
275	VIJAY	3036/22	38	M	HINDU	HUZUR	URBAN	DRIVER	RD	HBsAg	REPEATER	NO RESPONSE
276	SOMNATH DEY	3368/22	39	M	HINDU	HUZUR	URBAN	DRIVER	RD	SYPHILIS	REPEATER	C&R
277	MANOJ	3374/22	40	M	HINDU	HUZUR	URBAN	LABOURER	RD	HBsAg	REPEATER	NO RESPONSE
278	MAYANK	3445/22	33	M	HINDU	AWADHPURI	RURAL	PRIVATE JOB	RD	HBsAg	REPEATER	NO RESPONSE
279	PRADEEP SUBHRA	3507	23	M	HINDU	BAAGSEWANIYA	RURAL	PRIVATE JOB	VD	HBsAg	FIRST TIME	C&R

	NARAYAN	/22										
280	SANDEEP SINGH	3662/22	39	M	HINDU	KATARA HILLS	URBAN	GOVT JOB	RD	HBsAg	REPEATER	C&R
281	DILEEP CHOUHAN	3992/22	28	M	HINDU	KOLAR ROAD	URBAN	PRIVATE JOB	VD	SYPHILIS	REPEATER	C&R
282	MUKESH BAGHEL	3927/22	25	M	HINDU	SEMRA	RURAL	NA	RD	HBsAg	FIRST TIME	NO RESPONSE
283	VIVEK KUMAR PATEL	3943/22	32	M	HINDU	REWA	RURAL	PRIVATE JOB	RD	HBsAg	REPEATER	C&R
284	RAHUL BANELE	3969/22	26	M	HINDU	BAAGMUGALIYA	RURAL	PRIVATE JOB	RD	SYPHILIS	REPEATER	C&R
285	SHYAM CHOUHAN	3971/22	29	M	HINDU	BAAGMUGALIYA	RURAL	PRIVATE JOB	RD	HBsAg	REPEATER	NO RESPONSE
286	PURNA NAND SHARMA	3977/22	40	M	HINDU	PIPLANI	RURAL	PRIVATE JOB	RD	HCV	REPEATER	C&R
287	RAM SINGH PAL	3978/22	42	M	HINDU	BAAGMUGALIYA	RURAL	BUSINESS	RD	HBsAg	REPEATER	C&R
288	SUDHA	3989/22	54	F	HINDU	DEVRIKALAN	RURAL	NA	RD	HBsAg	FIRST TIME	NO RESPONSE

289	SUNIL PRAJAPATI	3991/22	38	M	HINDU	KOLAR ROAD	RURAL	PRIVATE JOB	RD	HBsAg	FIRST TIME	C&R
290	SHAWAZ KHAN	4007/22	20	M	MUSLIM	PIPALIYA	RURAL	STUDENT	RD	HBsAg	REPEATER	C&R
291	RISHAB RAJSEN	4027/22	33	M	HINDU	MISROD	RURAL	PRIVATE JOB	RD	SYPHILIS	FIRST TIME	C&R
292	RUPESH TOMARKAR	4031/22	31	M	HINDU	BENAPURA	RURAL	BUSINESS	RD	HIV	FIRST TIME	C&R
293	MANOJ NAGELE	4041/22	35	M	HINDU	BETUL	RURAL	FARMER	RD	HBsAg	FIRST TIME	C&R
294	RATNESH SHRIVASTAVA	4117/22	40	M	HINDU	KOLAR ROAD	URBAN	BUSINESS	RD	HCV	REPEATER	NO RESPONSE
295	RAVI KARAN	4143/22	28	M	HINDU	SHAKTI NAGAR	URBAN	PRIVATE JOB	RD	HBsAg	FIRST TIME	C&R
296	SANGEETA KAUSHAL	4145/22	28	M	HINDU	RENPURA	RURAL	STUDENT	RD	HBsAg	REPEATER	C&R
297	ASHOK KUSHWAHA	4151/22	36	M	HINDU	CHATTARPUR	RURAL	BUSINESS	RD	HBsAg	REPEATER	C&R

298	RAGHUVENDRA PATEL	4285/22	24	M	HINDU	SANTOSHNAGAR	RURAL	PRIVATE JOB	RD	HBsAg	FIRST TIME	NO RESPONSE
299	AVIRAJ PYASI	4304/22	31	M	HINDU	SATARA	RURAL	LABOURER	RD	HBsAg	FIRST TIME	C&R
300	NEETESH AHIRWAR	4393/22	22	M	HINDU	RAISEN	RURAL	STUDENT	RD	HBsAg	FIRST TIME	C&R
301	ANIKET AWHAD	4436/22	23	M	HINDU	KOLAR ROAD	URBAN	STUDENT	RD	HIV	FIRST TIME	C&R
302	PRINCE YADAV	4474/22	35	M	HINDU	KOKTA	RURAL	BUSINESS	RD	HBsAg	REPEATER	C&R
303	ARVIND SINGH	4478/22	25	M	HINDU	KHAJURIKALAN	RURAL	DRIVER	VD	SYPHILIS	FIRST TIME	NO RESPONSE
304	FEROZ KHAN	4525/22	40	M	MUSLIM	MANDIDEEP	RURAL	PRIVATE JOB	RD	HBsAg	REPEATER	C&R
305	SACHIN KUSHWAHA	4565/22	38	M	HINDU	VIDHISHA	URBAN	PRIVATE JOB	RD	HBsAg	FIRST TIME	C&R
306	KRISHNAPAL GAUR	4712/22	26	M	HINDU	SEHORE	RURAL	FARMER	RD	HBsAg	REPEATER	NO RESPONSE

307	GYANENDRA TIWARI	4715/22	47	M	HINDU	REWA	RURAL	BUSINESS	RD	HBs Ag	REPEATER	C&R
308	BABU YADAV	4914/22	22	M	HINDU	ASHOKNAGAR	URBAN	STUDENT	VD	HBs Ag	FIRST TIME	NO RESPONSE
309	JITENDRA AHIRWAR	4928/22	34	M	HINDU	PREMPURA	RURAL	LABOURER	RD	HIV+ SYPHILIS	REPEATER	NO RESPONSE
310	BRAJESH RAGHUWANSHI	4957/22	26	M	HINDU	VIDHISHA	URBAN	BUSINESS	RD	HBs Ag	REPEATER	NO RESPONSE
311	VIJAY	5043/22	35	M	HINDU	GOVINDPURA	URBAN	DRIVER	RD	HBs Ag	REPEATER	NO RESPONSE
312	GOLU	5338/22	24	M	HINDU	HOSHANGABAD	RURAL	PRIVATE JOB	RD	HBs Ag	FIRST TIME	NO RESPONSE
313	RAJA JATAV	5393/22	20	M	HINDU	GRAM USHAI BHOPAL	RURAL	STUDENT	RD	HBs Ag	FIRST TIME	C&R
314	ASHISH DHAKAD	5416/22	25	M	HINDU	VIDHISHA	URBAN	PRIVATE JOB	VD	HBs Ag	FIRST TIME	C&R
315	RAJIV PATHAK	5549/22	36	M	HINDU	RAISEN	RURAL	GOVT JOB	RD	SYPHILIS	FIRST TIME	NO RESPONSE

316	RAJENDRA JAIN	5655/22	38	M	JAIN	SHIVPURI	RURAL	PRIVATE JOB	RD	HBsAg	REPEATER	C&R
317	Md RAHBAR BASHEER	5651/22	47	M	MUSLIM	SNEHAGAR BHOPAL	RURAL	LABOURER	RD	HBsAg	FIRST TIME	C&R
318	FIYYAZ	5683/22	27	M	MUSLIM	GOVINDPURA	RURAL	GOVT JOB	RD	HBsAg	REPEATER	C&R
319	Md AFTAB KHAN	5794/22	22	M	MUSLIM	SHAKTI NAGAR	URBAN	STUDENT	RD	HBsAg	FIRST TIME	C&R
320	PRAKASH	5793/22	26	M	HINDU	VIDHISHA	URBAN	STUDENT	RD	HCV	REPEATER	NO RESPONSE
321	ARVIND BAGHEL	5820/22	23	M	HINDU	LINK ROAD	RURAL	PRIVATE JOB	RD	HBsAg	FIRST TIME	C&R
322	RAVI BABU	5871/22	25	M	HINDU	ASHOKNAGAR	URBAN	PRIVATE JOB	RD	HBsAg	FIRST TIME	C&R
323	KULDEEP SINGH GOUR	5872/22	35	M	HINDU	TIKAMGARH	RURAL	DRIVER	RD	HBsAg	REPEATER	C&R
324	BHARAT VISHWAKARMA	5893/22	40	M	HINDU	PANNA	RURAL	FARMER	RD	HBsAg	FIRST TIME	NO RESPONSE

325	RAMESH BUNDELA	5929/22	35	M	HINDU	VISHWAKARMA NAGAR	RURAL	PRIVATE JOB	RD	HBV+HCV	REPEATER	C&R
326	AJAY MALVIYA	6048/22	32	M	HINDU	BHOPAL	URBAN	PRIVATE JOB	RD	HBsAg	REPEATER	C&R
327	VISHAL KUMAR	6131/22	21	M	HINDU	RAMNAGAR	RURAL	STUDENT	RD	HBsAg	FIRST TIME	NO RESPONSE
328	SUNIL	6162/22	22	M	HINDU	MAHOBA	RURAL	STUDENT	RD	HBsAg	FIRST TIME	NO RESPONSE
329	RAHUL SAHU	6307/22	24	M	HINDU	SAGAR	URBAN	PRIVATE JOB	RD	HBsAg	REPEATER	C&R
330	ROHIT SEN	6375/22	31	M	HINDU	RAHUL NAGAR	RURAL	BUSINESS	RD	HBsAg	REPEATER	C&R
331	MANOJ MALVIYA	6509/22	31	M	HINDU	LAUDIYA TALAB	RURAL	DRIVER	RD	HIV	FIRST TIME	C&R
332	GAJRAJ	6566/22	48	M	HINDU	BARKHEDA	RURAL	PRIVATE JOB	RD	HBsAg	REPEATER	C&R
333	DEVENDRA GOSWAMI	6584/22	36	M	HINDU	BETUL	RURAL	PRIVATE JOB	RD	HBsAg	FIRST TIME	C&R

334	ANAND RATHORE	6602/22	32	M	HINDU	KHAJURIKALAN	RURAL	BUSINESS	RD	HIV+ SYPHILIS	REPEATER	NO RESPONSE
335	LORENS THOMAS	6603/22	28	M	CHRISTIAN	AHMADPUR	RURAL	PRIVATE JOB	RD	HBs Ag	REPEATER	C&R
336	NILESH LODHI	6706/22	24	M	HINDU	ASHOKNAGAR	RURAL	STUDENT	VD	HBs Ag	FIRST TIME	NO RESPONSE
337	SUMIT SHARMA	6742/22	33	M	HINDU	HARINAGAR DELHI	URBAN	PRIVATE JOB	RD	SYPHILIS	REPEATER	C&R
338	JEETENDRA BANJARA	6770/22	23	M	HINDU	SHYAMLA HILLS	URBAN	STUDENT	VD	HBs Ag	FIRST TIME	NO RESPONSE
339	RAHUL KUMAR	6939/22	34	M	HINDU	VIDHISHA	URBAN	PRIVATE JOB	RD	HBs Ag	FIRST TIME	C&R
340	KULDEEP KUMAR KAMAL	6940/22	39	M	HINDU	GOVINDPURA	RURAL	PRIVATE JOB	RD	HBs Ag	REPEATER	C&R
341	IRSHAD KHAN	7088/22	38	M	MUSLIM	BERASIYA ROAD	RURAL	BUSINESS	RD	HBs Ag	REPEATER	NO RESPONSE
342	SHIVA GUPTA	7130/22	22	M	HINDU	NARSINGHPUR	RURAL	STUDENT	RD	HBs Ag	REPEATER	C&R

343	SHEETAL KISHORE	7143/22	24	M	HINDU	CHHOLA MATA MANDIR	RURAL	STUDENT	RD	SYPHILIS	FIRST TIME	NO RESPONSE
344	PRADEEP PATEL	22//23	24	M	HINDU	ASHOKA GARDEN	URBAN	PRIVATE JOB	RD	HbSAg	REPEATER	C&R
345	SUDHANSHU BAJPAI	28//23	40	M	HINDU	SAKET NAGAR	URBAN	GOVT JOB	RD	HbSAg	REPEATER	C&R
346	RAHUL THAKER	99/23	23	M	HINDU	HOSHANGABAD	URBAN	STUDENT	VD	HCV	FIRST	C&R
347	SACHIN KUMAR SINGH	125/23	20	M	HINDU	BAIRAGARH	RURAL	NA	RD	HbSAg	FIRST	NO RESPONSE
348	SATISSH PATIL	141/23	32	M	HINDU	BARKHEDA PATHANI	RURAL	DRIVER	RD	HbSAg	REPEATER	C&R
349	ABHISHEK TOMAR	146/23	22	M	HINDU	MP NAGAR	URBAN	STUDENT	RD	SYPHILIS	REPEATER	C&R
350	YOGENDRA TOMAR	160/23	25	M	HINDU	KAMLA NAGAR	URBAN	PRIVATE JOB	RD	HIV	REPEATER	NO RESPONSE
351	SANJAY DUBEY	172/23	21	M	HINDU	MAHAVEER PURA	URBAN	PRIVATE JOB	RD	HbSAg	REPEATER	NO RESPONSE
352	SUNIL SEN	186/23	31	M	HINDU	BAIRAGARH	RURAL	LABOURER	RD	HbSAg	FIRST	NO RESPONSE

353	DUSHYANT SHARMA	205/23	27	M	HINDU	RAISEN	RURAL	BUSINESS	RD	HbSAg	REPEATER	C&R
354	LAXMINARAYAN AHIRWAR	216/23	23	M	HINDU	BHOPAL	URBAN	LABOURER	RD	HbSAg	REPEATER	NO RESPONSE
355	SHAKTI NAGAR	SDP	28	M	HINDU	FORTUNE DIVINE CITY	URBAN	PRIVATE JOB	VD	HbSAg	REPEATER	C&R
356	SHYAM KUCHBANDIYA	333/23	24	M	HINDU	ITARSI	URBAN	BUSINESS	RD	HbSAg	REPEATER	NO RESPONSE
357	SUNIL BERAGI	607/23	29	M	HINDU	BHOPAL	URBAN	DRIVER	RD	HbSAg	FIRST	NO RESPONSE
358	RAJESH KUMAR BAITHE	662/23	37	M	HINDU	BHOPAL	URBAN	GOVT JOB	VD	HbSAg	FIRST	C&R
359	PAWAN	735/23	28	M	HINDU	BAAGSEWANIYA	RURAL	PRIVATE JOB	RD	HCV	REPEATER	C&R
360	SANTOSH SINGH	741/23	32	M	HINDU	HOSHANGABAD	RURAL	BUSINESS	RD	HbSAg	REPEATER	NO RESPONSE
361	LALA SINGH RAJPUT	767/23	24	M	HINDU	BARKHEDA PATHANI	RURAL	FARMER	RD	HbSAg	REPEATER	C&R
362	SUNIL KUMAR GOUR	797/23	30	M	HINDU	RAISEN	RURAL	FARMER	RD	HbSAg	FIRST	C&R

363	ROHIT KUMAR DWIVEDI	820/23	29	M	HINDU	SATNA	URBAN	FARMER	RD	HbSAg	FIRST	C&R
364	ARVIND GOUR	894/23	37	M	HINDU	SEHORE	RURAL	PRIVATE JOB	RD	HbSAg	REPEATER	C&R
365	NIMESH KUMAR SAKET	896/23	37	M	HINDU	REWA	RURAL	BUSINESS	VD	HCV	REPEATER	NO RESPONSE
366	AJAY PATIL	897/23	25	M	HINDU	BAAGSEWANIYA	RURAL	STUDENT	RD	SYPHILIS	FIRST	NO RESPONSE
367	LALIT MISHRA	1034/23	35	M	HINDU	GOVINDPURA	URBAN	SALES REPRESENTATIVES	RD	HbSAg	FIRST	C&R
368	ASHISH MEENA	1099/23	24	M	HINDU	NARMADAPURAM	RURAL	STUDENT	RD	HbSAg	REPEATER	C&R
369	RAJKAPOOR CHOURASIYA	1153/23	39	M	HINDU	LALITPUR	RURAL	FARMER	RD	HCV	REPEATER	C&R
370	RAGHUVEER SARBAR	1294/23	28	M	HINDU	INDORE	URBAN	PRIVATE JOB	RD	HbSAg	FIRST	NO RESPONSE
371	MANMOHAN	1365/23	31	M	HINDU	RAISEN	RURAL	LABOURER	RD	HbSAg	REPEATER	NO RESPONSE
372	ASHISH	1394	44	M	HINDU	SAGAR	URBAN	MECHANIC	RD	HbSAg	FIRST	C&R

		/23										
373	DHARMENDRA PURI	1410/23	35	M	HINDU	SHIVPURI	RURAL	DRIVER	RD	HIV	REPEATER	NO RESPONSE
374	ZAKHIR KHAN	1444/23	38	M	MUSLIM	VIDHISHA	URBAN	LABOURER	RD	SYPHILIS	REPEATER	C&R
375	VINITA VINORIYA	1564/23	41	F	HINDU	GREATER NOIDA	URBAN	NA	VD	HbSAg	FIRST	NO RESPONSE
376	SANJEEV KUMAR	1645/23	27	M	HINDU	BAAGMUGHALIYA	RURAL	LABOURER	RD	HbSAg	REPEATER	C&R
377	SULTAN KHAN	1752/23	24	M	MUSLIM	INDORE	URBAN	PRIVATE JOB	RD	HbSAg	REPEATER	NO RESPONSE
378	SANDEEP	1793/23	24	M	HINDU	BERASIYA ROAD	RURAL	STUDENT	RD	HbSAg	FIRST	NO RESPONSE
379	RAVI RAJPUT	1953/23	22	M	HINDU	MANDIDEEP	RURAL	BUSINESS	RD	HbSAg	REPEATER	C&R
380	LAXMI NARAYAN	2172/23	29	M	HINDU	SEHORE	RURAL	PRIVATE JOB	VD	HIV	REPEATER	NO RESPONSE
381	RAM KHELAWAN	2198/23	39	M	HINDU	SATNA	URBAN	FARMER	RD	HbSAg	FIRST	C&R

382	DEEPAK VALMIK	2261/23	23	M	HINDU	GANESH NAGAR	RURAL	PRIVATE JOB	RD	HbSAg	FIRST	C&R
383	AATMA RAM PATIL	2266/23	31	M	HINDU	ASHOK VIHAR	URBAN	DRIVER	RD	HbSAg	REPEATER	NO RESPONSE
384	ANAY TRIVEDI	2352/23	26	M	HINDU	SAGAR	URBAN	PRIVATE JOB	RD	HbSAg	FIRST	C&R
385	SHUBHAM PATIDAR	2417/23	26	M	HINDU	BHOPAL	URBAN	GOVT JOB	RD	HCV	REPEATER	C&R
386	SANJAY KUSHWAHA	2476/23	30	M	HINDU	SAKET NAGAR	URBAN	BUSINESS	RD	HbSAg	FIRST	C&R
387	PREM SINGH	2511/23	33	M	HINDU	VIDHISHA	URBAN	PRIVATE JOB	RD	HbSAg	FIRST	NO RESPONSE
388	RAHUL KUSHWAHA	2535/23	31	M	HINDU	BARKHEDI KALAN	RURAL	BUSINESS	RD	HIV	REPEATER	C&R
389	VINOD THAKUR	2714/23	33	M	HINDU	RAISEN	RURAL	FARMER	RD	HCV	REPEATER	NO RESPONSE
390	SACHIN WILLIAM	2738/23	30	M	CHRISTIAN	HUZUR	RURAL	PRIVATE JOB	RD	HCV	REPEATER	NO RESPONSE

391	SUNIL CHAWARIYA	SDP	40	M	HINDU	BAAGSEWANIYA	RURAL	PEON	RD	HbSAg	REPEATER	C&R
392	ANUP GUPTA	2758/23	26	M	HINDU	SINGHAULI	RURAL	ENGINEER	RD	HCV	FIRST	C&R
393	SURENDRA MOHANE	2769/23	24	M	HINDU	RAISEN	RURAL	LABOURER	RD	HCV	FIRST	C&R
394	KAMLESH PAL	2850/23	41	M	HINDU	HUZUR	URBAN	DRIVER	RD	HbSAg	REPEATER	C&R
395	ANOOP KUMAR	2887/23	31	M	HINDU	BERASIYA ROAD	RURAL	FARMER	RD	HCV	FIRST	NO RESPONSE
396	SUNIL KUMAR TTIPATHI	3008/23	32	M	HINDU	BERASIYA ROAD	RURAL	PRIVATE JOB	RD	HbSAg	REPEATER	C&R
397	RAKESH KUMAR KAIMOR	3039/23	33	M	HINDU	MORENA	RURAL	DRIVER	RD	HbSAg	REPEATER	C&R
398	PAWAN VERMA	3101/23	30	M	HINDU	SHAHJAPUR	RURAL	PRIVATE JOB	RD	SYPHILIS	FIRST	C&R
399	VISHAL DONGRE	3120/23	26	M	HINDU	BETUL	RURAL	FARMER	RD	HCV	REPEATER	C&R
400	BRAJ MOHAN	3121	30	M	HINDU	RAISEN	RURAL	GOVT JOB	RD	HbSAg	REPEATER	NO RES

	NAMDEV	/23										PONSE
401	MAHESH SHARMA	3136/23	26	M	HINDU	NEHRU NAGAR	URBAN	DRIVER	VD	HCV	FIRST	NORESPONSE
402	FIROZ BAIG	3313/23	31	M	MUSLIM	TT NAGAR	URBAN	DRIVER	RD	HCV	REPEATER	NORESPONSE
403	IKRAM QURESHI	3336/23	26	M	MUSLIM	RAISEN	RURAL	LABOURER	RD	HbSAg	FIRST	C&R
404	RAJKUMAR	3345/23	34	M	HINDU	HUZUR	URBAN	PRIVATE JOB	RD	SYPHILIS	REPEATER	NORESPONSE
405	RAJESH BASERIYA	3376/23	44	M	HINDU	HOSHANGABAD	RURAL	LABOURER	RD	HCV	REPEATER	C&R
406	MOHD. AMEEN	3415/23	23	M	MUSLIM	HABIBGANJ	RURAL	CAR MECHANIC	RD	HbSAg	FIRST	C&R
407	SUKHBEER YADAV	3438/23	30	M	HINDU	INDORE	URBAN	BUSINESS	RD	HBV + SYPHILIS	REPEATER	NORESPONSE
408	SUNIL KUMAR LODHI	3478/23	27	M	HINDU	RAISEN	RURAL	LABOURER	RD	HCV	REPEATER	NORESPONSE
409	MANISH KUMAR	3576	44	M	HINDU	DATIA	RURAL	FARMER	RD	HbSAg	FIRST	C&R

		/23										
410	SHREERAM	3668/23	35	M	HINDU	RAJASTHAN	RURAL	DRIVER	RD	SYPHILIS	REPEATER	C&R
411	NAVNEET NIPSARIYA	3726/23	37	M	HINDU	JHANSI	RURAL	PRIVATE JOB	RD	HbSAg	REPEATER	C&R
412	NARESH SINGH PAL	3728/23	44	M	HINDU	BHOPAL	URBAN	DRIVER	RD	HbSAg	REPEATER	C&R
413	SANGEETA MATHUR	3729/23	38	F	HINDU	BHOPAL	URBAN	PRIVATE JOB	RD	HCV	FIRST	C&R
414	VIVEK PANCHOLI	3742/23	39	M	HINDU	BHOPAL	URBAN	LABOURER	RD	HbSAg	REPEATER	C&R
415	ANAND SINGH RAJPUT	3751/23	33	M	HINDU	BHOPAL	URBAN	PRIVATE JOB	RD	HbSAg	FIRST	C&R
416	TAKSRAJ SARWAN	3854/23	19	M	HINDU	BHOPAL	URBAN	STUDENT	VD	HbSAg	FIRST	C&R
417	NAVNEETH VISHWAKARMA	3881/23	46	M	HINDU	BHOPAL	URBAN	PRIVATE JOB	RD	HbSAg	REPEATER	C&R
418	MOHIT KUMAR BARKHEDE	3913/23	23	M	HINDU	BHOPAL	URBAN	STUDENT	RD	HCV	FIRST	C&R

419	DEEPAK GOTEL	3942/23	24	M	HINDU	HUZUR	URBAN	ATTENDER	RD	HCV	FIRST	C&R
420	ASHISH MARAN	SDP	28	M	HINDU	BHOPAL	URBAN	PRIVATE JOB	RD	HCV	REPEATER	C&R
421	RAHUL LOHAYA	4002/23	30	M	HINDU	BHOPAL	URBAN	GOVT JOB	RD	HbSAg	FIRST	C&R
422	SANJAY KUMAR PATHAK	4013/23	36	M	HINDU	SAGAR	URBAN	FARMER	RD	SYPHILIS	REPEATER	C&R
423	SANDEEP SEN	4320/23	21	M	HINDU	RAISEN	URBAN	PRIVATE JOB	RD	HbSAg	REPEATER	C&R
424	VISHAL DANGI THAKUR	4359/23	24	M	HINDU	BHOPAL	URBAN	DRIVER	RD	HIV	FIRST	NO RESPONSE
425	ASHOK YADAV	4380/23	27	M	HINDU	HOSHANGABAD	URBAN	PRIVATE JOB	RD	HbSAg	FIRST	NO RESPONSE
426	GULAB SINGH KUSHWAHA	4449/23	30	M	HINDU	SHIVPURI	RURAL	FARMER	RD	HbSAg	REPEATER	C&R
427	IKARAR KHAN	4453/23	54	M	MUSLIM	VIDHISHA	URBAN	DRIVER	RD	HbSAg	FIRST	C&R
428	RAHISH KR SAHU	4499/23	39	M	HINDU	HUZUR	URBAN	BUSINESS	RD	HbSAg	REPEATER	C&R